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14 October 2003

Dr. Jerry Pell, Ph.D.
Fossil Energy, FE-27
U.S. Department of Energy
Washington, DC 20585

Subject: First Comments on the Department of Energy's *Tucson Electric Power Company (TEP) Sahuarita-Nogales Transmission Line Draft Environmental Impact Statement* (DOE/EIS-0336 and BLM Reference No. AZA 31746) dated July 2003

References:
(a) Department of Energy letter dated 11 August 2003
(b) *Federal Register*, "Department of Energy Notice of Availability of Draft Environmental Impact Statement and Public Hearings ..." of 27 August 2003. (*FR* 68, 51560)
(c) *Federal Register*, "Department of Energy Notice of Intent to Prepare an Environmental Impact Statement and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands involvement, Tucson Electric Power Company," (*FR* 66, 35950) dated 10 July 2001.
(d) *National Environmental Protection Act* of 1969 (NEPA)
(e) *Joint TEP-Citizens ACC CEC Application* "In the matter of a Joint Application of Tucson Electric Power Company and Citizens ... for a Certificate of Environmental Compatibility for a Proposed 345 kV Transmission Line System from Tucson Electric Power Company's Existing South 345 kV Substation, ... Sahuarita, Arizona, to the proposed Gateway 345/115 kV Substation in ... Nogales Arizona with a 115 kV Interconnection to Citizens ...115 kV Valencia Substation in Nogales, Arizona, with a 345 kV Transmission Line from the Proposed Gateway Substation South to the International Border ." of 1 March 2001.
(f) *ACC Decision No. 64356*, "In the matter of a Joint Application of Tucson Electric Power Company ... to the International Border ..." of 15 January 2002.

These comments are provided in response to your letter, reference (a) of 11 August 2002, the *Federal Register* instructions in reference (b), and the *Federal Register* Environmental Impact Statement (EIS) notice in reference (c). The EIS process must follow reference (d) as proscribed in reference (c). The proposed system is described in reference (e) as modified by reference (f).

The comments are prepared with an Overall Summary, several Parts as follows:

Overall Summary, Conclusions, and Recommendations
Part I – Specific Comments, Questions, and Recommendations on the Draft EIS
Part II – Compliance of Draft EIS with *Federal Register* Notice of Intent to prepare an EIS
Part III – Comparison of Marshall Magruder Scoping Inputs to the Draft EIS

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Overall this draft EIS has erroneous and incomplete information, confusing and contradictory statements, with major requirements of reference (c) missing.

As shown in by the specific key comments in Part I, the failure to comply in Part II, the inadequate response to my Scoping inputs in Part III (to be submitted separately), this document failed to provide adequate, correct and reliable information. This effort has proven to be entirely too time consuming due to such an inadequate draft EIS. Additional inputs will be forthcoming. This input is provided to be postmarked on October 14, 2003.

The public and governmental agencies and decision makers require an updated, resubmitted Draft EIS for another round of review, prior to going to the next phase, required by reference (d), the Final EIS.

Sincerely

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Overall Summary, Conclusions, and Recommendations

This version of the draft EIS, as indicated in Parts I to III that follow, appears to have missed the mark in many key decision making areas for the proposed system.

Summary of a few Key Comments
These are brief statements; however, the details in the following Parts to this letter must require compliance for a adequate draft EIS.

1. Failure by the DOE to **evaluate the local power plant Alternative** specified in the *Federal Register* NOI of July 10, 2001.

2. Failure by the DOE to consider the 345 kV transmission line **system operational capability** (or capacity) of **2,000 MW**, with associated requirements and information necessary to

   A. Determine safe minimum Right Of Way (ROW) and easement requirements,
   B. Determine significant effects of increased EMF levels (four times that assessed),
   C. Re-compute the disturbed areas involved in project due to stepped-up power, and
   D. Account for increased land acquisition costs with resultant higher socio-economic and environmental justice impacts than presented.

3. Failure by the DOE to prove adequate needs for the system, other than TEP's business plan.

4. Errors by the DOE in **Central Route**, Segment Legs 9 and 10, in the vicinity of Cerro Pelon that require extensive maps and land use data to be revised, as **Leg 9 is in the TEP's Central** Route and Leg 10 in the TEP's Eastern Route.

5. Failure by the DOE to determine the **minimum safe distances** between the El Paso Natural Gasline (EPNG) and TEP's transmission line systems with an ample margin of safety. No national standard exists for when these two utilities are in parallel easements. Consequently, the multiple electrical-gas interactions including induced electricity, gas and electric system grounding interaction, extensive natural gas distribution substation back pressure "venting", and EMF impacts on gasline cathodic protection systems require that a **minimum safe distance** to be specified in order to avoid significant liability with 908-psi, nearly 50-year old, pair of natural gas pipelines. The ACC requirement was only "greater than requirement" with safe distance to be determined later. That time is now as the **minimum safe distance** impacts much information in the draft EIS.

6. Failure by the DOE to reduce liability concerns if an incident results in the future between TEP's transmission line system and EPNG including explosions, fire, damage, injury or death, by inclusion of a signed "**Memorandum of Understanding Concerning Liability Responsibilities between TEP and El Paso Natural Gas**" (or similarly titled) corporate agreement between TEP and EPNG, Inc., in the EIS.

7. Failure by the DOE to include **adequate maps**, in particular, topographic maps commonly used in this area.

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8. Failure by the DOE to show **interconnecting** 345 kV transmission capabilities in Sonora, Mexico. There are only 230 kV there and no future plans show 345 kV lines.

9. **Failure by the DOE to consider any Mexican impacts by the proposed system:**

   A. Environmental (cultural, socio-economic, air and water, etc.) impacts, effects, proposed mitigation schemes, system information on Mexican side of the border,
   B. No Mexican Alternatives were considered, assessed, or evaluated.
   C. No Mexican-half system construction, operations or maintenance effects were considered to impact the US side of the border.
   D. US system-half system construction, operations or maintenance effects were not considered to impact the Mexican side of the border.

10. **Failure by the DOE to assess the required 500-year Flood requirement process, including public reviews, for "critical" facilities that require 500-year** flood plain analysis by Army Corps of Engineers, specifically the TEP South Substation, located on the Santa Cruz River and inside the 100-year floodplain. This substation is proposed to expand in the direction of the river. **The resultant floodplain analysis (Appendix C) should be rejected as erroneous, misleading, with hazards to people and property, including potential heavy metal pollution of the Tohono O'odham San Xavier Indian Reservation and into the Tucson aquifer.**

11. Failure by TEP to integrate into their socio-economic analysis that this is a **backup** or secondary line for Nogales. It will be required about 2 hours a year (worst case). It will raise residential rates between $24 and $30 per month per customer. Nogales, Arizona, cannot use more than 5% (<100 MW) of the line 2,000 MW capacities, with 95% (>1,900 MW) of this line capability dedicated to trading Mexican electrical power. The DOE must openly discuss the Mexican "power" issue in the EIS. TEP's purchase of interest in a coalmine and coal-fired power plant in Mexico and other political and economic events occurring in Mexico that could impact this line needs discussion. These long-term plans must be presented. **The "backup" requirement for Nogales, Arizona is inadequate justification for this project.**

12. Failure by DOE to understand the **Nogales "reliability" problem is bogus**. We have 48 MW of backup in Nogales. What is needed is a second, redundant energy source (for backup) about 2 hours per year. Short, local 115 kV lines rated at 100 MW from a small generation plant or distributed generation sites, but not a 345 kV line rated at 2,000 MW.

13. Failure by the DOE to discuss, to consider, to evaluate or to make system recommendations on the system add significant DOE judgments in this draft EIS, which has resulted in many TEP-oriented statements and pronouncements which are not been proven, justified, evaluated, or correlated with prior TEP's testimony, applications or other documentation on this system. For example, the Biological Assessments (BA) in Appendices D, E, and F were submitted to "Tucson Electric Power" and not to DOE, implies a **possible conflict of interest** could exist. If the applicant controls the BA, then the applicant controls the resultant environmental impacts, assessments and mitigation measures being recommended.

14. Failure by the DOE to include a **reliable interconnection design near the border. TEP's proposal is unsatisfactory, unreliable, unstable, and hazards millions of Americans**.

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15. Failure by the DOE to prove electrical reliability will be stable on both side of the Mexican/U.S. border. TEP's proposal is to remove Sinaloa and Sonora states from the Mexican Grid and encapsulate them into the US Western Grid. This will include all the Mexican power plants and transmission lines from C.F.E.'s NW Region, Sinaloa and Sonora states, some exceeding 650 miles south of Nogales. Without an AC-DC-AC converter or other physical means to separate these two, asynchronous grids, **high probability for cascading electrical failures in western U.S. and Canada exists**. This is a major concern to the public. This reliability analysis, commonly not included in DOE EISs must be included the **next draft EIS due to its critical nature for southern Arizona and the nation**.

16. Failure by TEP to obtain **airspace authorization** and permits in FUZZY ONE Military Operational Airspace to use helicopters for construction or for tower construction and power operations in military airspace (flight hazard).

Conclusions

A. Acceptable responses to the above Key Comments clearly conclude that the **deficiencies** in this draft plan **are significant**, and that another round of review, for a minimally acceptable Draft EIS is essential.

B. Without a compliant **Cumulative Effects Analysis** (CEA) that meets the Notice of Intent and the Council on Environmental Quality standards, the **DOE should consider the draft EIS non-compliant.**

C. Adequate responses to Parts I to III will result in such a changed document, that all prior **conclusions would require reconsideration**, including those by the Arizona Corporation Commission. A different decision or No Action would most likely result.

D. In general, this document appears to be more of a TEP document than a document produced by the DOE. A philosophical or conceptual review is necessary, because the "third-party" and associated EIS contractors are required to respond to DOE direction and control, and not that observed of the Applicant (TEP)-oriented views in this version of the draft EIS. There is enough of the TEP "point of view" throughout the document to cause rejection of this draft version as non-compliant with NEPA. For example, Appendices C, D, and E were submitted to TEP, not DOE, and it appears material therein was not under DOE direction, but was directed by the Applicant.

E. Without TEP providing the preliminary design details, such as specific "siting" [defined as location, position] and not vague conceptual "areas." NO locations can be verified as environmentally compliant or can be validated to cause significant environmental impact. Siting requires significant negotiation with many parties including landowners. The DOE Public Hearings indicated this has NOT been accomplished. This must be completed so an adequate description is available, then environmentally important issues and details can be reviewed, options evaluated, preliminary to final changes accomplished, and re-viewed, until concurrence results in a system that meets the minimum requirements under NEPA. Thus, there is **no basis for approval** of an incomplete document that **fails to locate the position of anything in their proposal.**

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F. **TEP proposes a "system" but only has the half available for review. Without the entire system being reviewed, including the details of the Mexican environmental impacts, designed as mentioned in the prior conclusion, this process should not move to the Final EIS phase.**

Recommendations

I recommend that:

(1) The **DOE re-submit a revised and complete version of a Draft EIS** including the conclusions and recommendations herein, for public reviews, with local public review sessions, and consider further comments on the re-submitted version. The Final EIS process must be delayed until after this review. Without this re-submission, decision makers have inadequate, incomplete, and erroneous information.

(2) **If (1) is not accomplished, then issuing a Record of Decision for the NO ACTION ALTERNATIVE is the only appropriate option left to the Department of Energy and the Cooperating Agencies.**

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Part I - Specific Comments, Questions, and Recommendations on the Draft EIS (July 2003 version)

These comments are provided in tabular form so that each can be assessed individually by the DOE and Cooperating Agencies.

These comments are sorted as one reads the document. The Summary version was not specifically reviewed. It will require a complete revision to be acceptable and include the changes in the EIS.

Organization of these Review Comments.

In the left "paragraph" column, each entry is described, such as Figure or Table and number. The first entry for each is identified by its title or subtitle, when appropriate.

The second column is the page number.

The third column gives the paragraph number, starting at the first written lines at the top of a page, then a slash, followed by the line numbers involved in that paragraph. There may be instances with one may have to search a bit on the page for the location due to "bulleted" subparagraphs or other formatting variations. When a Figure has more than one drawing, an indication such as "left figure" is to aid the reviewer. If there is just one figure, the location of the comment in the figure may read something like "center" to aid the reviewer.

The Fourth column, usually contains at least two entries, a "Comment" and a "Recommendation" with "questions asked for clarification, usually information necessary for the next version of the draft EIS. Each Comment, Question and Recommendation is sequentially numbered to assist in the reviewer. Simple comments and recommendations are made without long explanations. In many instances, changes are recommended, with recommended text provided. Some long changes are also included, along with recommended additional Tables to be included in the next EIS version.

Additional reference(s) to a Paragraph or Figure, page, text paragraph/line number, are located in the table beside a "comment" or "recommendation" to aid the reviewer to the appropriate reference.

Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
Cover Letter 11 Aug. 2003	1	1/5	1. **Comment**. The date published in the *Federal Register* was August 27, 2003. 2. **Recommendation**. Change "22" to read "27" before "August".
Cover Sheet	None	Contacts	3. **Comment**. Suggest including the "toll free" phone number. 4. **Recommendation**: after "Telephone: (202) 586-3362" add new line to read: "Toll-Free Telephone (recording): (800) 430-4046"
Cover Sheet	None	Abstract 1/1	5. **Comment**. The term "construct" is not clear. 6. **Recommendation**. Change "construct" to read: "commence construction of".
Cover Sheet	None	Abstract 1/6	7. **Comment**. The term "redundant" is not used in the Arizona Corporation Commission Order 62011 which required "a second transmission line" with no other specification. It could be from a local power plant, if not from near Tucson. Further, the TEP transmission line, based on testimony at least a dozen times during the ACC Transmission Line Siting hearings, will only be

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Comment No. 1-2

The Final EIS has been modified to reflect the correct date of *Federal Register* publication as August 27, 2003.

Comment No. 3-4

The toll-free number was established to facilitate public involvement during the scoping and public comment period. Therefore, the toll-free number is not available after the publication of the Draft EIS.

Comment No. 5-8

The text is correct as written.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			used for "backup" purposes since the local utility owns the present 115 kV line, that has been upgraded to 100 MW. Has TEP or Citizens changed their joint testimony that the TEP line would never be the primary line? 8. **Recommendation**: Change "redundant" to read "backup second transmission line" to closer reflect the mandate for this line.
Cover Sheet	None	Abstract 1/7 and 1/9	9. **Comment**. Citizens Communications has been purchased by UniSource Energy, Inc. (UNS), the holding company for TEP. UNS has created UniSource Energy Services, Inc. (UES) as a holding company for the natural gas and electricity companies purchased from Citizens Communications. The new electrical utility, in both Santa Cruz and Mohave Counties, is UNS Electricity, Inc. Based on these changes in ownership, wherever appearing in this document; Citizens Communications should now read UNS Electricity, Inc. There should be no changes to TEP based on this purchase agreement. 10. **Recommendations**: (1) Change "Citizens Communications" to read "UNS Electricity, Inc." (2) Change "Citizen's" to "UNS Electricity's"
Cover Sheet	None	Abstract 1/7 to 10	11. **Comment**. During the ACC Transmission Line Siting hearings and subsequent information, the maximum peak load for UNS Electricity, Inc., customers in Santa Cruz County was 58.7 MW on June 4, 2002. There is no wholesale or retail customer for the difference between a firm commitment made by Citizens (and assumed by UNS Electric) for the 100 MW in the Joint TEP-Citizens Project Development Agreement (PDA) located in TEP's ACC Application. During another ACC case (the combined Citizens PPFAC, Citizens Gas, UniSource Purchase cases), UniSource stated in response to a Data Request, that this firm transmission commitment could be reduced to 60 MW, since there are no possible buyers in Nogales for the excess 40 MW. This is for **backup** electricity in case of failure of both (1) the present UNS Electric's 115 kV (100 MW) transmission line, and (2) the backup 48 MW generation capacities in Nogales. It should be noted that only 500 MW are now planned for this transmission system; however**, the system is designed to operate to its thermal limit of 1,000 MW per circuit (for example, see 1.2.1, page 1-7), for a total of 2,000 MW.** This means **Santa Cruz County will use from about 2% to 5% of the capacity of the TEP 345 kV (2,000 MW) transmission line capabilities**. 12. **Question**. (1) Why would TEP demand that a utility (now UNS Electricity) purchase 40% more electricity than it could use on its peak day? (2) How and when will the other 1,500 or 1950 MW of capacity be allocated? (3) What are the electrical supply resources and demand sinks involved with this system? 13. **Recommendation**: Change the last two sentences to read: "UNS Electricity, Inc., the local Nogales utility, was committed by a prior TEP-Citizens Project Development Agreement to purchase 100 MW of firm transmission capacity from TEP. UniSource Energy (UNS), during another ACC case, reduced this to meet the current Santa Cruz County load of approximately 60 MW. TEP anticipates using the remaining 440 MW of the requested operational capacity for transport of energy between the United States and Mexico."
Chapter 1 Introduction	1-1	2/5	14. **Comment**. The DOE NEPA representative, Mrs. Ellen Russell, appeared before the Arizona Corporation Commission's (ACC) Power Plant and Transmission Line Siting Committee on two occasions and requested that the ACC and other State of Arizona agencies involved with this project join with the federal NEPA process as cooperating agencies. 15. **Questions**. (1) Why did the state of Arizona not "cooperate" with the federal government when developing an EIS?

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Comment No. 9-10

The discussion regarding the purchase of the Citizens Communications by UniSource Energy, Inc. (UNS) has been expanded in Section 1.1.2 of the Final EIS.

Comment No. 11-13

The ACC is vested with the state's authority to decide how it believes energy should be furnished within Arizona's borders (for example, the need for and effectiveness of transmission lines within its borders). Refer to Section 1.1.2, The Origin of TEP's Proposal: TEP's Business Plan and the Proceedings of the Arizona Corporation Committee, that provides explanation of the jurisdictions and authorities of the state and Federal agencies, and their relationship to this NEPA analysis. Analysis of commitments made by utilities is outside the scope of the EIS.

UNS has committed to the purchase of 100 MW of transmission capacity from TEP to allow for future growth above Citizen's current Santa Cruz County load of approximately 65 MW. TEP anticipates using the other 400 MW of capability for transport of energy between the U.S. and Mexico. If DOE issues a Presidential Permit, it would contain limits on the amount of power that could be placed on the transmission line. These limits are based on reliability studies done in support of the application and also on the design limiting the transmission line to operate at 500 MW. If TEP wanted to operate the transmission line above 500 MW, TEP would have to apply to DOE for an amendment to their Presidential Permit, and DOE would have to perform additional analysis required by NEPA.

Comment No. 14-16

As the lead agency, DOE may invite Federal and state agencies to join in the NEPA process by becoming a cooperating agency. It is within an agency's discretion to accept or reject the invitation to become a cooperating agency. While any of the alternatives would be viable for selection by the Federal decisionmakers in their respective RODs (see Section 1.6.6), implementation of the proposed project could not occur until TEP meets all regulatory requirements, including obtaining the necessary approval from the ACC and other state agencies.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(2) Since there are many open issues at the State of Arizona level, how will these be resolved? 16. **Recommendation**: Add new sentence after "cooperating agencies." to read: "The DOE NEPA representative appeared before the Arizona Corporation Commission's (ACC) Power Plant and Transmission Line Siting Committee on two occasions and requested that various Arizona agencies join with the federal NEPA process as cooperating agencies. DOE received no response to both this oral and the written request. The State of Arizona did not cooperate in the development of this EIS." [emphasis recommended]
1.1 Background	1-1	1/2	17. **Comment**: The term "proposes" should be in the past tense as the proposal in question was submitted on August 17, 2000. This is to clarify that information in this paragraph is related to material that could, in all likelihood, change. 18. **Recommendation**: change "proposes" to "proposed"
1.1	1-1	2/5	19. **Comment**: The TEP South Substation is inside the city limits of the Town of Sahuarita and across West Pima Mine Road from the Tohono O'odham San Xavier Mission Reservation. [stated as such many times in the draft EIS] 20. **Recommendation**: change "vicinity of" to read "Town of Sahuarita and in the vicinity of the Tohono O'odham San Xavier Mission Reservation" [and all other instances]
1.1	1-1	2/6 to 7	21. **Comment**: The proposed TEP transmission line will have two circuits from South Substation to Gateway Substation to Santa Ana Substation, Sonora, Mexico with a 115 kV spur from Gateway to the Valencia Substation in Nogales. One circuit will be transformed to a single circuit, at 115 kV, rated at 100 MW to interconnect with UNS Electricity, Inc., the local electrical utility in Nogales. This interconnection will be from the Gateway Substation to the Valencia Substation, on Grand Avenue, Nogales, Arizona. The ACC Certificate of Environmental Compatibility (CEC), Condition 19 which states "commons structures shall not be used to double circuit the new 115 kV transmission line..." 22. **Recommendation**: change the beginning of the fourth sentence to read: "TEP has proposed to connect two 345 kV circuits (1,000 MW each) to the Gateway Substation and to Santa Ana Substation, Sonora, Mexico, with one 115 kV (100 MW) circuit from Gateway to interconnect with ..."
1.1	1-1	2/7 to 8	23. **Comment**: UniSource Energy, Inc. (UNS) has purchased the resources and personnel of Citizens Communications Company. It is now operated and maintained by a subsidiary of UniSource Energy Services, Inc. (UES), as UNS Electricity, Inc. The organization changes from the Joint Citizens-TEP Application needs to be presented. Why isn't an organization chart included to show these relationships, which changed again on August 11, 2003? 24. **Recommendation**: change "Citizens Communications Company (Citizens) (formerly know as Citizens Utilities)" to read "UNS Electricity, Inc. a subsidiary of UniSource Energy Services, Inc. (UES), which is a subsidiary of UniSource Energy, Inc. a holding company that also includes TEP. UniSource, on 11 August 2003, purchased Citizens Communications Arizona Electricity Division, formerly known as Citizens Utilities."
1.1	1-1	2/10 to 12	25. **Comment**: The proposed TEP transmission line is planned to be a twin-circuit, 345 kV transmission systems that will continue "across the U.S.-Mexico border." There are no 345 kV transmission lines installed in the Mexican State of Sonora. There are no 345 kV capabilities at the Santa Ana Substation. 26. **Questions**: (1)What organization is responsible for interconnection standards at the U.S.-Mexican border? (2)How are such standards determined?

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Comment No. 17-18

Although TEP submitted its application for the proposed project on August 17, 2000, TEP has not withdrawn its application for the proposed project and the application process is ongoing.

Comment No. 19-20

The maps in the Final EIS have been modified to incorporate the correct boundary of the Town of Sahuarita.

Comment No. 21-22

The text is correct as written.

Comment No. 23-24

See response to Comments 9-10 above.

Comment No. 25-27

Section 1.1.1, The Proposed Action, has been revised in the Final EIS to clarify that the 345-kV transmission line that TEP proposes to construct would go just across the U.S.-Mexico border, where it would likely connect to another transmission line. The specific routing of the connecting transmission line between the U.S.-Mexico border and a new substation in the area of Nogales, Sonora, and the location of the substation have not yet been determined.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(3)What organization enforces compliance? (4)What organization inspects, certifies and approves interconnection at the U.S.- Mexican border? (5)What are the penalties for non-compliance after initial certification? 27. **Recommendation**: add a new sentence at the end of this paragraph to read: "There are no 345 kV circuits in Sonora for the proposed TEP transmission line to interconnect with. Such an interconnection will have to be designed, constructed, maintained, and certified to meet the Western Area Coordination Council (WACC) reliability standards prior to any interconnection with the TEP transmission system."
1.1 Figure 5	1-1 C-5	2/10 to 12 Center	28. **Comment**. A copy of the letter approving and certifying the joint US-Mexican approved border crossing must be in the Final EIS so there is no later disagreement as to the exact location of this border crossing, which is fairly congested in this area. There is also an El Paso Natural Gas pipeline that crosses the border along with other utilities. 29. **Recommendations**: (1) Include a copy of the approval and certification by both countries of the exact border crossing point in the Final EIS. (2) Show on maps, such as Figure 5, page C-5, the natural gasline and any other utility easements in the vicinity of the transmission line crossing.
Figure 1.1-1 2.2.2 2.2.2	1-2 2-14 2-14	Left drawing	30. **Comment**. This drawing now show the depth required underground for the structure or the height above ground for the lowest conductor. 31. **Recommendation**: Add the underground structure and height above ground for the lowest conductor and place these dimensions in the left drawing. Also, show the fiber-optic splicing box locations (see section 2.2.2, page 2-14).
Figure 1.1-1 2.2.2 2.2.2	1-2 2-13 2-13	All	32. **Comment**. In section 2.2.2 (page 2-13), there are three different variations in the monopole (tangent structure, turning structure, and deadend structure). 33. **Recommendation**. Please show each type with dimensions indicated for each that are discussed in section 2.2.2.
Figure 1.1-2 2.2.2 2.2.2	1-3 2-14 2-14	All	34. **Comment**. In paragraph 2.2.2 (page 2-14), there are three different variations in the lattice structure (tangent structure, turning structure, and deadend structure). 35. **Recommendation**. Please show each type with dimensions indicated for each that are discussed in section 2.2.2.
Figure 1.1-2 2.2.2	1-3 2-14	Left drawing	36. **Comment**. This drawing does now show the depth required underground for this structure, the height above ground for the lowest conductor, or the width of the Right of Way (ROW). 37. **Recommendation**: Add the underground structure and height above ground for the lowest conductor show and label the width of the ROW and place these dimensions in the left drawing. Also, show the fiber-optic splicing box locations (see section 2.2.2, page 2-14).
Figure 1.1-3	1-4	Main drawing, lower half	38. **Comment**. This drawings fail to show the transmission line between the US-Mexican border and to Santa Ana, Sonora, Mexico. There will have to be an approved route in Mexico, and a US-Mexican "agreed" interconnection point on the Border, before this EIS can be completed. 39. **Recommendation**: **Show the approved 345 kV transmission line route from the TEP transmission line crossing the border to the Santa Ana Substation** and include the location of the approved border crossing. It several Alternatives are under consideration, they should also be shown.
Figure 1-1-3 Figure 1.1-4 Figure 2.1-2 Figure 2.1-4 Figure 3.1-1	1-4 1-5 2-4 2-9 3-3	Both figures Both figures Left figure Left figure The figure	40. **Comment**. These drawings show the Central Route as following the El Paso Natural Gas (EPNG) line in the vicinity of Tubac, Arizona. The Central Route proposed by TEP to the ACC Line Siting Committee did not follow the EPNG line in Tubac. From TEP's ACC Certification of Environmental Compatibility Application, of March 1, 2001, in Exhibit A-4b (sheet 3 of 3)

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Comment No. 28-29

The proposed corridors would meet the U.S.-Mexico border approximately 3,300 ft (1,005 m) west of Arizona State Highway 189 in Nogales, Arizona (see Chapter 2). USIBWC would review plans for construction of the proposed project where it would cross the border between the United States and Mexico and assess whether the effects of the proposed project would be consistent with existing bilateral arrangement between the two countries or would obscure or otherwise impact the international border.

Comment No. 30-31

The figure correctly shows what the structure would look like to viewers.

Comment No. 32-33

The three slightly different monopoles that would be used along the corridor based on the turning angle of the transmission line and the elevation change between towers would be visually very similar to the monopole shown in the Chapter 1 of the Final EIS. The environmental impacts of the different variation of the monopoles would be very similar if not identical to the impacts that are cited in the Final EIS, and therefore, only one figure of the typical monopole that would be used is shown in the EIS.

Comment No. 34-35

The three slightly different lattice towers that would be used along the corridor would be visually very similar to the monopole shown in the Chapter 1 of the Final EIS. The environmental impacts of the different variation of the lattice towers would be very similar if not identical to the impacts that are cited in the Final EIS, and therefore, only one figure of typical lattice tower that would be used is shown in the EIS.

Comment No. 36-37

The figure correctly shows what the structure would look like to viewers.

Comment No. 38-39

See response to Comments 25-27 above.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
Figure 3.1-2	3-9	The figure	which shows the "preferred alternative" or Central Route Segment Leg 9, to
Figure 3.2-2	3-17	The figure	the west of Cerro Pelon, in Tubac. Segment Leg 10, an Alternative Route,
Figure 3.2-3	3-19	The figure	continues in this area along the EPNG line. Where appearing in this version
Figure 3.2-4	3-20	The figure	of the EIS, comments will be included in page sequence, when the
Figure 3.3-1	3-28	Both figures	differences in Segment Leg 9 and Segment Leg 10 require correction to
Figure 3.6-2	3-64	The figure	conform to TEP's Application. Further, the Leg 9 separation from the EPNG
Figure 3.6-5	3-67	The figure	line was included in the DOE's *Federal Register* "Notice of Intent" of 10 July
Figure 3.7-1	3-71	Both figures	2001.
Figure 3.7-2	3-72	The figure	41. **Recommendation**. **Correct this Figure to agree with the ACC CEC**
Figure 3.7-3	3-74	Both figures	**Application and the *Federal Register*.**
Figure 3.8-2	3-81	Both figures	
Figure 3.11-1	3-91	The figure	
Figure 3.13-1	3-98	Both figures	
Figure 3.13-2	3-99	Both figures	
Figure 4.2-1	4-20	The figure	
Figure 4.2-3	4-24	The figure	
Figure 4.2-4	4-26	The figure	
Figure 4.2-5	4-27	The figure	
Figure 4.2-7	4-30	The figure	
Figure 4.2-8	4-32	The figure	
None	4-35	Right figure	
None	4-36	Right figure	
None	4-37	Right figure	
None	4-38	Right figure	
None	4-39	Right figure	
None	4-40	Right figure	
None	4-41	Right figure	
None	4-43	Right figure	
None	4-44	Right figure	
None	4-45	Lower figure	
None	4-46	Lower figure	
None	4-47	Right figure	
None	4-48	Right figure	
None	4-49	Right figure	
None	4-50	Top figure	
none	4-51	Right figure	
Figure 1.1-4	1-5	various	42. **Comments**. There are three comments: (1) In the white center area of the map, the Sonoita State Conservation Area (5000 acres), the new Sonoita State Park, Robert Damon Rio Rico State Park, Tubac Presidio State Historic Park, and San Rafael Valley State Park should be shown in light blue as "State of Arizona" land. (2) The Tumacacori Mission N.H. P. should be indicated as Department of Interior, National Park Service. (3) Patagonia is an incorporated town and should be indicated like Nogales. 43. **Recommendation**: Show the state lands in blue to represent the Sonoita Conservation Area; Rio Rico, Sonoita and San Rafael State Parks, Tubac Presidio S.H.P; Tumacacori Mission N.H.P. and the incorporated area of the Town of Patagonia.
1.1	1-6	1 (all)	44. **Comment**. No data presented to the ACC Line Siting Committee hearing during 2001 confirmed the reliability of the proposed synchronization solution. TEP said it did not have a solution but one would be required. TEP did testify that the TEP transmission line system would interconnect with all the CFE generation stations in Sonora and Sinaloa. TEP stated no qualification or testing programs had been discussed or approved to ensure reliability between the Mexican and US systems. There is strong evidence that the synchronous current connection will fail or at best will be very fragile. TEP consideration of a Direct Current (DC) interconnection was

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Comment No. 40-41

The Central Corridor is correct as shown in all figures in the EIS (see for example, Figure 1.1-4), and is correctly described in the reference text. In the *Notice of Intent* for the proposed project, the Central Corridor was shown as diverging to the west of the EPNG pipeline for a short distance near Tubac, while the Eastern Corridor followed the EPNG pipeline more closely. However, upon elimination of the Eastern Corridor from further analysis (prior to the Draft EIS), TEP opted to retain the corridor alignment following the EPNG pipeline near Tubac (formerly the Eastern Corridor) as the Central Corridor for the Draft and Final EIS.

Comment No. 42-43

Due to the scale and the level of detail shown in Figure 1.1-4, the suggested locations are not shown or shaded in order to present a simplified, user-friendly map. The historic parks in Tumacacori and Tubac are outside of the three 0.25-mi (0.40-km) wide study corridors. Therefore, the impact on these historic parks from the Central Corridor (the closest of the corridors to these parks) would be limited to visual impacts. Since publication of the Draft EIS, a field review of these sites was conducted and a report, the "Proposed TEP Powerline—Visibility from Tumacacori and Tubac Historic Sites", was added to Appendix I. Based on that field review and associated report, Section 4.4.1.2 has been revised with the following language: "Impacts to views from the historic parks in Tumacacori and Tubac would be minimal."

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			discarded due to cost. DC interconnections have been proved to be reliable and effective at boundaries between two asynchronous systems, the US Western and Mexican Grids. With about 25% of all electricity generated in Mexico illegally tapped from the distribution system (data shown at ACC hearings), local shorts, outages, and failures have a much higher frequency than in the United States. A major outage of both Sonora and Sinaloa States (up to 1,000 miles south of Nogales, Arizona) occurred on 17 April 2001, where many locations were without electricity 24-hours after the initial cascading failure caused a synchronization problem at a Hermocillo generation plant, hundreds of miles from Nogales, Sonora, which lost electricity for a minimum of six-hours. These local failures can, when not property handled by personnel, can result in major outages, such as what happened in the Mid-West U.S. this summer, or trees on lines as in the Oregon cascading failure in 1996 that impacted Tucson. This paragraph fails to demonstrate any confidence in TEP's interconnection analysis, design, operability, reliability, or proof that cascading failures will be inhibited at the US-Mexican border. **Without such confidence, the NO ACTION Alternative is the only logical conclusion for this application.**
			45. **Recommendation**. Due to prior news articles concerning the high probability of failure and cascading Mexican blackouts, this section requires facts, figures and trade-study information necessary to prove that such failures will not result from the system. TEP failed before the ACC; however, they assumed the "feds" would resolve this significant issue. **This has to be fully explained, with numbers to indicate outages, probability of cascading outages, qualifications to US standards for Mexican generation and transmission line systems and operators, and other data to prove the proposed interconnection and system to Santa Ana and that specific interconnection will NOT fail.** For example, how will the SCADA information from all 50 Mexican generation plants be made available at TEP's Control Center in Tucson?
1.1	1-6	1/7	46. **Comment**. First paragraph, line 7, "Noreste" 47. **Recommendation**: should read "Northwest"
1.1	1-6	3/2 and 3	48. **Comment**. The phrase "run immediately adjacent to the pipeline ROW" is not permitted by the ACC Certificate of Environmental Compatibility (CEC) Condition 18, which states "All transmission structures shall be place a minimum of 100 feet from the edge of the gas pipeline right of way." This is due to the impact of electric fields on the gas line and to reduce possible explosive situations. The impacts include increase gasline corrosion, induced currents, and negative impacts with gasline catholic protection systems. The results of EMF on gasline safety are poorly understood; however, a preliminary model from the Gas Institute of Canada Report 105 was discussed during the ACC Line Siting Hearings with the 100-foot separation being considered as a minimum. I pointed out to the ACC that the formula applied was calculated improperly and the minimum distance, for a 500 MW systems, should be 138 feet for one of the two EPNG lines at their normal operating pressure of 508 pounds per square inch. A higher 2,000 MW system requires a much greater separations, on the order of 500 feet, between the gas and electric ROWs to meet minimum gas explosive safety requirements which are just to prevent damaging the transmission lines from flames of a gas fire. Induced current impacts have not been accounted for, which extends beyond the EPNG line, but involves any ferromagnetic structures/pipes these transmission lines will cross. Additional study and analysis, which accounts for and uses soil resistively measurements, updated EPNG line physical measurements with "pigs" to determine the current corrosive states of these two 50-year old gas lines is necessary. Several EPNG substations and distribution stations exist along these routes with several "blow" values that release overpressures,

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Comment No. 44-45

As part of DOE's decisionmaking process on whether to grant a Presidential Permit for the proposed project, DOE will determine whether the proposed project will adversely impact the reliability of the U.S. electric system. Also, before authorizing exports to Mexico over the proposed 345-kV facilities, DOE must ensure that the export will not impair sufficiency of supply within the United States and will not impede, or tend to impede, the coordinated use of the regional transmission system. Section 1.5 discussed synchronization of the U.S. and Mexican systems.

Comment No. 46-47

The text is correct as written as it is in Spanish.

Comment No. 48-49

Section 4.10 of the Final EIS has been revised to include discussion on safety considerations for collocating natural gas pipelines and transmission lines. TEP has consulted with EPNG about the proposed project, and TEP would have detailed discussions with EPNG regarding safety issues of siting the proposed transmission line near the distribution station once an exact location for the structures is determined.

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			sometimes for over 36-hours at a time. NG can be smelt hundreds of feet away from these substations. The explosive mixture of NG-air is about 5 to 15%, not very high concentrations. Meteorological micro-climate conditions can create local thermal inversions to "trap" NG is local canyons to achieve explosive concentrations. In addition, grounding of the electrical structures in the vicinity of NG lines needs a minimum separation. Santa Cruz County has more lightning strikes per square mile than any other county in Arizona. 49. **Recommendations**. That an analysis be conducted and data included in the draft EIS which assesses the impacts between the electric and electromagnetic fields from the transmission lines and the two EPNG lines which are intended to be considered for crossing, or running adjacent to. The following resulting minimum safe separation between the gas and electric lines needs to consider, as a minimum, gas line corrosion, induced currents, and catholic system degradation based on actual corrosive measurements for these two EPNG lines, the soil conditions along the EPNG route, and grounding impacts, including lightning arrestment, with respect to various air-natural gas mixtures. The results from this study are necessary to determine the "**minimum safe distance**" between the NG and electricity ROWs. A **concern public, especially, those whose property is adjacent to the EPNG line, must be presented this analysis in order to complete this EIS review.**
1.1	1-6	3/4 and 5	50. **Comment**. This sentence indicates that many crosses of the EPNG might occur. The results of the prior comment may impact "crosses" and the "follows" thus the additional "offset" distance should be specified in the last sentence of this paragraphs. 51. **Recommendation**. Before the period at the end of this paragraph, add "and accounts for a minimum offset by the transmission line ROW by XXX feet when "follows" and each crossing is required by (TBD – whatever the resultant crossing limitations become from the above analysis)."
1.1	1-6	4 (all)	52. **Comments**. The Federal Register (66 FR 35952) states "The EIS will also consider alternatives to the proposed transmission lines, including, to the extent practicable: (1) **No Action Alternative**... (2) **Construction of a powerplant in the U.S. closer to the U.S.-Mexican border with a shorter transmission line extending to the border, an alternative concept for supplying electric power to the target region.** This Alternative is MISSING from this Draft EIS. It needs to be developed as a fifth alternative, as many in Santa Cruz County favor such an approach. TEP testified during the ACC Line Siting Hearings that it never seriously considered such an approach. This continues. Without this Alternative, this draft EIS fails to conform to the requirements clearly presented in the *Federal Register* Notice of Intent of July 10, 2001. 53. **Recommendation**. Include this Fifth Alternative throughout the EIS. If a second draft EIS is NOT provided to the public, then a Supplemental EIS, containing and completing this analysis, comparison, and evaluations prior to the Final EIS being prepared for the public. If asked, the public would prefer this Alternative to any of the three transmission line alternatives. Only the DOE can make TEP do this, as it is not in TEP's interest to perform such an analysis. Why? The results may or probably will, lead to this Fifth Alternative as the best, most optimal and preferred solution for all Governmental Agencies cooperating in this study. Add a new paragraph between the present third and fourth paragraphs to read: "A fifth Alternative is required by the *Federal Register* (66 FR 35950) for "Construction of a powerplant in the U.S. closer to the U.S.-Mexican border with a shorter transmission line extending to the border, an alternative concept for supplying electric power to the target region." This Alternative shall be added to all parts of this EIS so that it can be

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Comment No. 50-51

The number of times that the proposed transmission would cross the EPNG pipeline would be determined upon final siting of the transmission corridor, following each Federal agencies' ROD.

Comment No. 52-53

The alternative of a new power plant is evaluated briefly in the EIS (refer to Section 2.1.5, Alternatives Considered But Eliminated From Further Analysis). ACC Comment 3 emphasized that a new power plant in Nogales is not a viable alternative to a new, second transmission line (part of TEP's proposal).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			compared with the three Route Alternatives and the No Action Alternative. This comparison shall be provided to the public for review and comment with these review comments incorporated into the Final EIS. A Supplemental EIS maybe necessary to comply with this requirement."
1.1 1.1 S-2	1-6 1-6 S-2	4/5 and 6 5/1 4/6	54. **Comment**. The fourth sentence states: "DOE has decided to identify the Western Corridor as DOE's preferred alternative at this time." From the comments elsewhere, only TEP's "preferred" route and the ACC's elimination of all other routes are the rationale for this designation. Since this is NOT based on DOE's evaluation, but only one TEP's preference which was barely approved by the ACC Line Siting Committee, after one Committee member changed the outcome from a "hung" I-(non-decisive vote which would meet approval without any limitations on TEP), and then the ACC designate only the Western route as being suitable. Such wording fails to give confidence that the DOE has even made an assessment. Based on this rationale, it appears that use of the designation "TEP Preferred Alternative" reflects the truth in this mater, which applying the DOE adjective makes it appear to be a stronger descriptive phrase than it really is. 55. **Recommendation**. Where appearing in the EIS, the term **"DOE preferred alternative" should be changed to read "TEP's preferred alternative"** to reflect the source of this designation.
1.1.	1-6	6/2to 5	56. **Comment**. The part of the Central Route near Tubac, where the Central Route departs from the EPNG line in Segment Leg 9. As presently worded, the Central Route "follows or crosses the EPNG pipeline ROW. Leg 9 is slightly longer than Leg 10 that needs to be reflected in this description. 57. **Recommendation**. In this first sentence, line two starting at "parallel" change to read: "parallel and offset from the EPNG pipeline ROW" and in the second and third sentences, the lengths might need to be increased slightly to account for Leg 9. In the second sentence, line 4, before the "period" add, "except in the Tubac area where Segment Leg 9 leaves the EPNG pipeline, going to the west of Cerro Pelon, and then rejoining and offset from the EPNG ROW."
1.1	1-7	Before second paragraph	58. **Comment**. The required "Power Plant" alternative needs to be discussed, and logically, this would be before the "No Action Alternative." The analysis necessary to include the "power plant alternative". From the Federal Register (66 FR 35952), this power plant is "an alternate concept for supplying power to the target region." It appears that there are two "target regions" with one target area being Santa Cruz County with power necessary for backup, as mandated by the ACC, and the second being the Santa Ana substation, Sonora, Mexico. Santa Cruz County has never exceeded 60 MW of demand. Based on the Joint City of Nogales/Santa Cruz County Energy Commission results in June of 2001 indicating that long-term demands would be 100 MW or lower, then consideration for that demand of a power plant with a capability of at least 70 MW and less than 100 MW would serve that demand. The second target area, Sonora Mexico, demand would be that indicated by C.F.E. of 457 MW considered for purchase from the Nogales-Naco area of Mexico in 2006 to 2008. Thus a power plant of 450 to 500 MW would meet that demand. The below is a recommended wording of a new paragraph. 59. **Recommendation**: Add the following. **Power Plant Alternative.** The Federal Register (66 FR 35952) requires that a power plant, constructed in the U.S. closer to the U.S.-Mexico border with a shorter transmission line extending to the border, as an Alternative concept for supplying electric power to the target area. There are two target areas. One target area, the City of Nogales and Santa Cruz County, target area would need a power plant of generating between 70 to 100 MW. The second target area, originating at the Santa Ana substation, in

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Comment No. 54-55

The text is correct as written.

Comment No. 56-57

See response to Comments 40-41 above.

Comment No. 58-59

See response to Comments 52-53 above.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			Sonora, Mexico, would need a power plant generating between 450 and 500 MW. For this concept, this power plant would be co-located at the Gateway Substation. The estimated length of a high voltage (rated at 500 MW) transmission line would be about 3.0 miles to the border and 2.6 to 3.0 miles of 115 kV (100 MW) transmission line to the Valencia Substation. These transmission lines would have the same characteristics as those proposed by TEP. This power plant would use natural gas from the present EPNG pipeline (with natural gas concentrated in Tucson) to meet the Nogales requirements and a new pipeline needed for the Mexican target area."
Figure 1.1-4 Figure 2.1-3 Figure 2.1-4 Figure 3.1-1 Figure 3.2-1 Figure 3.2-2 Figure 3.2-3 Figure 3.2-4 Figure 3.3-1 Figure 3.6-2 Figure 3.6-5 Figure 3.7-1 Figure 3.7-2 Figure 3.7-3 Figure 3.8-2 Figure 4.2-1 Figure 4.2-4 Figure 4.2-5 Figure 4.2-8 Figure 5.2-1 Figure 1 Figure 5	1-5 2-5 2-9 3-3 3-9 3-17 3-19 3-20 3-28 3-64 3-67 3-71 3-72 3-74 3-81 4-20 4-26 4-27 4-32 5-3 C-3 C-5	Lower Lower Lower Right Right Right Right Right Left figure Lower Lower Lower Right Lower Lower Lower Lower Lower Lower Lower Lower Right	57. **Comment**. This figure does not show the 115 kV transmission lines (Preferred Alternative and the Alternative) from the Gateway Substation to the Valencia Substation. 58. **Recommendation**. Add the Preferred and Alternative 115 kV transmission lines between the Gateway and Valencia Substations. If too small, then show just the Preferred 115 KV transmission line and the Valencia Substation.
1.2.1 Applicant's Purpose and Need	1-7 to 1-8	Entire	60. **Comment**. This entire paragraph appears supplied by the Applicant. No analyses have been provided by the Applicant to confirm or deny, validate or invalidate, show understanding the issues, assess requirements, or verify that such the stated "need" exists. 61. **Recommendation**: That the Applicant must update and remove all the obsolete material in this paragraph. The Applicant needs to clearly discuss and separate "purpose" from the "need" as these are separate concepts. The "purpose" will describe the objectives, goals and end results for the system. The "need" should describe the circumstances, deficiencies, and requirements, which resulted in establishing specifications for the system. **The Applicant must "prove" that a validated need exists for each requirement necessary to develop the proposed transmission system.**
1.2.1	1-7 to 1-8	2/all	62. **Comment**. Imprecise worded phrases need clarification, definition, and rationale for their use, such as • "potential to benefit" (requires a cost-benefit analysis, as a minimum, for both target areas), • "availability of electric power" (requires a supply and demand analysis, as a minimum, for both target areas)", • "need to improve transmission" (requires a transmission load and stability analysis, as a minimum, for both target areas)", • "assist… in meeting an ACC mandate" (as a minimum, requires a discussion on how such "assistance" will be provided to achieve the precise requirements, that need to be presented, of this mandate), • "second transmission line" (as a minimum, the three options for 345 kV,

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Comment No. 57-58 *(misnumbered comment)*

The 115-kV transmission line from Gateway Substation to the Valencia Substation has been added, as appropriate, to the applicable figures in the Final EIS.

Comment No. 60-78

TEP's purpose and need has been revised in the Final EIS (see Section 1.2.1).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			115 kV and 115-345 kV options need to be presented, each analyzed, and trade studies performed and presented in this EIS so that cost/benefits of the options for one 115 kV (100 MW) transmission line to achieve the ACC mandate, an intermediate 115-345 kV, or the twin-circuit 345 kV (2000 MW) lines as now proposed – without such a trade off study showing impacts of these options and how they were evaluated to determine the "TEP preferred" alternative.), • "serve .. customers in Santa Cruz County by December 31, 2003" (as • a minimum, meeting schedules requires a plan with key events, accomplishment tasks and durations, with milestone dates as used in project management expected for this system) 63. **Recommendation**. This section be re-written as indicated above, and include: • Cost-benefit analyses, • Supply and demand analyses for past, present and future needs, • Transmission load and stability analysis (summary format but reference to a detailed technical report(s) listed in Chapter 11, References), • All options in the TEP-Citizens Project Development Agreement (for "planned project scope" or the 345 kV configuration, the "interim project scope" for
1.2.1	1-7 1-7 1-8	2/4 4/3, 4 and 7 1/1, 2, 3, and 5	59. **Comment**. Citizens Communications (Citizens) has been purchased by UniSource Energy, Inc. (UNS), a holding company, which oversees UniSource Energy Services, Inc., (UES), which oversees UNS Electricity, Inc., the one-for-one replacement for Citizens. 60. **Recommendation**: Change "Citizens", "Citizens Communications", or Citizens (Communication Company)" to read: "UNS Electricity, Inc." where appearing.
1.2.1	1-7	3/1	61. **Comment**. The first sentence in this paragraph appears misleading and fails to express the details in this agreement. 62. **Recommendation**. Change this sentence to read as "TEP and Citizens Communications Company (now UNS Electric, Inc., a subsidiary of UniSource Energy Services, Inc.) signed a Project Development Agreement (PDA) which gave TEP responsibilities to design, construct, and test a transmission line system to meet the second transmission line requirements implemented by ACC Order No. 62011."
1.2.1	1-7	3/5	63. **Comment**. The end of the second sentence is not clear. 64. Recommendation. Replace "accordance…" to the period, with "in accordance with the ACC Decision No. 64356 (ACC 2002) and its 30 Conditions. These Conditions are in Table 1.2.1-1 below: ***Table 1.2.1-1 ACC Decision No. 64356 Conditions*** **Condition Number** / **Definition of the Condition** 1 – Applicants shall obtain all required approvals and permits necessary to construct the Project. 2 – Applicants shall comply with all existing applicable laws, environmental control standards and regulations, ordinances, master plans and regulations of the United States, the State of Arizona, Pima and Santa Cruz Counties, the City of Nogales, the Town of Sahuarita, the Tohono O'odham Nation, and any other governmental entities having jurisdiction. 3 – As to the Preferred Route. Applicants shall construct the Project transmission lines only within the corridor more fully described in Exhibit I, attached hereto (the Route "Corridor"). 4 – Applicants shall met and confer with landowners who are within or adjacent to the Route Corridor and other interested parties in order to develop a plan for specific pole locations that will mitigate the environmental and visual impact of the Project transmission lines within the Route Corridor.

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Comment No. 60-78 ***(continued)***

TEP's purpose and need has been revised in the Final EIS (see Section 1.2.1).

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Paragraph	Page	Para/ Line Nos.		Comments, Questions (if necessary), and Recommendation
			5	Applicants shall, prior to construction of the Project transmission lines, conduct the studies recommended in the Report of The Harris Environmental Group, Inc. attached to the Joint Application as Exhibit C ("Harris Report") and attached hereto as Exhibit 2.
			6	Applicants shall implement the mitigation measures and impact avoidance recommendations set forth in the Harris Report and those recommended in the additional Harris Report studies. Applicants shall also continue to completion those studies that are ongoing as identified in the Harris Report.
			7	Applicants shall file with the ACC, in this docket, the findings of the additional Harris Report studies.
			8	Applicants shall retain an archaeologist satisfactory to the State Historical Preservation Office (SHPO). The archaeologist is to be on site during construction activities to advise applicant in connection with any additional archaeological and related studies that may be required and to manage cultural and historical preservation efforts for archaeological sites that may be affected by the construction of the Project transmission lines. The archaeologist shall meet and confer with representatives of local Native American Nations and local historical societies to determine any sensitive areas and determine if and how they can be avoided or mitigated.
			9	Applicants shall retain a biologist satisfactory to the Arizona Game and Fish Department. The biologist is to be on-site during construction activities in connection with any additional biological and related studies that may be required and to advise Applicants in connection with mitigation efforts for any endangered, threatened and sensitive species that may be affected by the construction of the Project transmission line.
			10	Applicants shall consult with the State Historical Preservation Office to advise them in connection with any mitigation efforts for any historical sites affected by the construction of the Project transmission lines and any historical identified and made known to them (any information on historical sites in the record of Case No. 111 is deemed known to the applicant.
			11	In the final design and construction of the transmission line, Applicants shall: (a) Use structures of a non-reflective nature that are to the greatest extent possible consistent with the terrain and vegetation through which they are installed. (b) Use non-specular conductors and dulled structures of a self-weathering material and color suitable to the terrain and vegetation. (c) Use monopoles except in locations where use of lattice towers would minimize detrimental impacts upon the total environment. (d) When making specific easement routing decisions as to the ultimate pathway to be followed for the construction of the transmission line, the applicant shall make the minimization of any detrimental impact upon the total environment the deciding factor as between different pathways within the corridor approved by this decision.
			12	Before construction on this project may commence, the Applicant must file a **construction mitigation and restoration plan** with ACC Docket Control. Applicants shall, within one year of completion of the Project, rehabilitate to its original state any area disturbed by construction of the Project, except for any road that may be necessary to access the transmission lines for maintenance and repair. The goals of the Plan will be to: • Avoid impacts where practical; • Where impacts are unavoidable, minimize impacts; and • Focus on site preparation to facilitate natural processes of revegetation. Other key elements of the Plan are to: • Emphasize final site preparation to encourage natural

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Comment No. 60-78 ***(continued)***

TEP's purpose and need has been revised in the Final EIS (see Section 1.2.1).

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Paragraph	Page	Para/ Line Nos.		Comments, Questions (if necessary), and Recommendation
				revegetation; • Avoid (*i.e.*, reserve), where practical, mature native trees; • Stipulate a maximum construction corridor width; • Preserve topsoil and plant material from the right-of-way before grading, and respread over the right-of-way after construction is complete; • Imprint the restored right-of-way to prevent indentations to catch seed and water; • Implement best management practices to protect the soil; • Apply restoration methods that have been shown to work in the desert environment; • Prevent the spread of noxious weeds or other undesirable species; and • Apply methods to discourage unauthorized off-highway-vehicle (OHV) use of right-of-way.
			13	In connection with the Western Systems Coordinating Council review process, TEP shall provide to the ACC Utilities Division requested technical information regarding any interconnection plans between TEP and CFE.
			14	TEP shall notify the ACC Utilities Division, within thirty (30) days of execution, of the existence of any agreement between TEP and CFE and shall provide any technical studies performed to investigate the interconnection between TEP and CFE.
			15	Applicants shall file with the ACC, in Docket n. L-00000C-01-0111, and L-00000F-01-0111, a copy of the federal Environment Impact Statement ("EIS") and associated Records of Decision, when completed, for the Project.
			16	Applicants shall comply with the recommendations, mitigation measures, and actions to reduce or prevent environmental impact included in the EIS.
			17	The authorization to construct the Project will expire three years from the date the Certificate of Environmental Compatibility is approved by the ACC. Applicants shall have the right to apply to the ACC for an extension of this time limitation.
			18	All transmission structures shall be placed a minimum of 100 feet from the edge of existing gas pipeline right-of-way.
			19	Common structures shall not be used to double circuit the new 115 kV transmission line approved herein with Citizens' existing 115 kV transmission line.
			20	Distribution substation feeder lines shall not be attached to structures supporting the 115 kV lines approved herein. Applicants or their assigns may apply to the ACC for a waiver of this condition in the event of future system expansion.
			21	Citizens shall make necessary systems improvements to ensure continuity of service in the event of an outage on the new 115 kV transmission line approved herein and shall submit system improvement plans to the ACC Utilities Division six months from the date this Certificate of Environmental Compatibility is approved by the ACC.
			22	Applicants shall participate as a consulting party with the lead federal agency, the State Historical Preservation Office ("SHPO"), and the state and federal land managing agencies in the federal compliance process (*i.e.*, 36 C.F.R. 800) to reach a finding of the effect and to resolve adverse effects, if any.
			23	Should federal involvement in any part or all of this project be removed or not occur, the Applicants shall continue to consult with SHPO in the state compliance process to reach a determination of impact and resolve impacts, if any.
			24	The Applicants shall ensure consultation with Indian tribes regarding the potential impacts to historical properties, particularly traditional cultural places, that may be present within, or adjacent to, the proposed corridor, and resolve adverse effects, if any. Such

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Paragraph	Page	Para/ Line Nos.		Comments, Questions (if necessary), and Recommendation
				consultations shall be done in a sensitive manner respectful of tribal sovereignty and concerns regarding confidentiality.
			25	The Applicants shall include the geographic area effected by the project (*i.e.*, area of potential effect), the final right-of-way and buffer zone, new and existing access roads, material source pits (if any), and equipment staging areas.
			26	The Applicants shall sponsor the necessary studies to complete the historical site identification effort as part of the federal or state compliance process. This may include a cultural resources survey, archaeological testing, or ethnographic study performed under the direction of professionals that meet the Secretary of the Interior's qualification standards and permitting requirements of the appropriate land-management agency.
			27	If historic property cannot be avoided, Applicants shall sponsor the necessary studies or take the appropriate actions to lessen or mitigate the impacts as part of the federal or state compliance process. The may include archaeological data recovery(*i.e.*, excavations), archival research and structure documentation.
			28	After construction, Applicants, in conjunction with the land-managing agency, if any, shall allow Arizona State Stewards, volunteer-staffed SHPO program, to periodically inspect the sites present within the corridor for vandalism or damage.
			29	The Applicants, their successor(s) or assignee(s) shall submit a self-certification letter annually, identifying which conditions contained in the CEC as amended, have been met. Each letter shall be submitted to the Utilities Division Director on August 1, beginning with 2002, describing conditions which have been met as of June 30. Attached to each certification letter shall be documentation explaining, in detail, how compliance with each condition was achieved. Copies of each letter, along with the corresponding documentation, shall also be submitted to the Arizona Attorney General and the Directors of the Arizona Department of Environmental Quality, Department of Water Resources, and Department of Commerce Energy Office.
			30	The authority to construct facilities granted by this Commission Decision **shall be revoked** and the associated CEC **rendered null and void in its entirety if** (a) the Applicants, their successor(s) or assignee(s) legally challenge any condition herein, or **(b) fail to comply with any condition herein as determined by the Commission.** [emphasis added by Magruder to show the significance of these 30 conditions.]
1.2.1	1-7	3/5 to 9		65. **Comment**. There are two sentences that discuss extensions in the operational date for this project. ACC Order No. 64356 (ACC 2002) does not discuss the operational date for the proposed transmission system. In order to clarify and include correct references, new sentences are included. 66. **Recommendation**. Reword these two sentences to read: "The ACC Order No. 62011, dated November 2, 1999, the ACC issued Decision 62011, "In the matter of service quality issues, analysis of transmission alternatives, and proposed plan of action in the Santa Cruz Electric Division of Citizens Utilities Company". On October 27, the City of Nogales filed a Complaint against Citizens concerning electrical outages in Nogales, Arizona. After several ACC Orders, procedural orders, and on August 9, 1999, the ACC Staff "Settlement Agreement Between Commission Staff and Citizens Utilities Company" committed Citizens to a plan of action "to build a second transmission line to serve its customers in Santa Cruz County by December 31, 2003." The Settlement Agreement said, "Citizens will owe a penalty of $30,000 per month for each full month delay after December 31, 2002" which represents liquidation damages for Citizens' failure to fulfil [sic] its obligations under this Agreement and for the benefit of Citizens' Arizona electric customers." The ACC Order No. 62011of November

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Comment No. 60-78 ***(continued)***

TEP's purpose and need has been revised in the Final EIS (see Section 1.2.1).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			2, 1999 implemented this Settlement Agreement. The TEP-Citizens Project Development Agreement and testimony at the ACC Power Plant and Transmission Line Siting Committee hearings indicate that TEP has assumed the penalty obligation, formerly assigned to Citizens. The Settlement Agreement permits "circumstances beyond its reasonable control" to be used to file for a waiver of the penalty. It should be noted, that only a 115 kV transmission line between Nogales and Tucson was proposed in Citizens plan of action, with no indications that a transmission line with Mexican interconnection or traversing the National Forest were considerations, which have delayed, but were avoidable by Citizens-TEP having chosen other alternatives that the system contained in this EIS."
1.2.1	1-7	4/1 to 3	67. **Comment**. The terms "thermally capable of transmitting 1,000 MW, as expanded in 2.2.2, means that the conductors and the system is designed to transmit 1,000 MW on each circuit, or 2,000 MW total. The present request is for a 500 MW system, primarily since that is more than is available at TEP's South Substation. The system is designed for 2,000 MW, then all environmental factors need to account for that load, and not 500 MW or TEP would have to return to the DOE and request a change to the Presidential Permit, update the Final EIS which would have to be provided to the pubic for review as a new Draft EIS, followed by Public Comments, then a Final EIS developed and routed to the appropriate agencies for Records of Decision. By considering this system, as it really is, a 2,000 MW system, then the above steps would not be required. 68. **Recommendation**. Replace the first sentence with: "Each circuit is capable of transmitting 1,000 MW based on the thermal rating of the conductors. **The overall total system, for the double-circuit system is capable of transmitting 2,000 MW, thus this EIS will be assessed for the design load of 2,000 MW for this system**. The initial load design and operational conditions will be limited to 500 MW total, for operational and reliability considerations. "
1.2.1	1-7	4/4	69. **Comment**. The JDA required Citizens to purchase firm delivery of 100 MW. This exceeds the highest local demand by over 40% and is between 40% to 75% too high for normal daily demand peaks. This electric power can not be used by any other entity in Nogales Arizona. During a recent purchase power case, during discovery, UniSource indicated that it might consider 60 MW instead of 100 MW. This is reflected below. 70. **Recommendation**: Add new sentence, after second sentence, "UNS Electricity, Inc. for Santa Cruz County will initially purchase firm delivery for a maximum of 60 MW TEP during summer months and for a maximum of 45 MW during winter months. A monthly and diurnal demand curves will be included in the interconnection agreement required by the Joint [UES and TEP] Development Agreement."
1.2.1	1-7	4/4 to 8	71. **Comment**. The sentence, "This would allow Citizens to improve reliability of electric service to its customers in Santa Cruz County." Should be deleted, as the next sentence, which discusses "redundant path" is the key to transmission line reliability. 72. **Recommendation**. Replace these two sentences with "The proposed TEP transmission line could provides redundant path, the key to improving transmission line reliability, between an independent power source and substations in Santa Cruz County. Transmission line reliability is primarily a function of line length, not voltage. Human factors considerations require functional teams with key personnel trained and ready for operations during any weather condition augmented by automated performance sensing and monitoring equipment, diagnostics and evaluation, implementation and feedback recording capabilities necessary to automate system responses and react to ensure system safety and optimize performance under all

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Comment No. 60-78 ***(continued)***

TEP's purpose and need has been revised in the Final EIS (see Section 1.2.1).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			natural and human caused environmental factors. Resultant transmission reliability must ensure both."
1.2.1	1-8	1/1 to 2	73. **Comment**. This sentence indicated, "Citizens committed to purchase to 100 MW of transmission capacity". This sentence then states the "current Santa Cruz County load of approximately 65 MW." The maximum peak load as 58.7 MW in June 2002. This exceeds the maximum peak load of MW by at least 70%, which would still exceed the County's highest demand, at 3% annual growth, for more than 20 years in the future. Since 48 MW of backup generation exists in Santa Cruz County, at present only 10.7 MW of backup power is necessary on the highest demand days. Based on statistical results, backup power, without any additional measures, including load reduction or efficiency measures, adequate power is available about 99% of the time. This deficiency can be overcome also by additional distributed energy sources in the county or local generation sources. However, under no circumstances should the local utility, now UNS Electricity, be obligated to purchase unnecessary electricity. Based on this, from 11 MW to 50 MW, could possibly be needed from the TEP Transmission line in the next 15 to 20 years, not 100 MW. Purchasing 100 MW electricity, based on the present TEP FERC-approved wheeling rate of $2.33/kW/month, is (2.33x1000x100x12) $2,796,000 per year. For 15,000 customers is (2796000/15000) $186.40 per year for backup electricity. Primary power will never be purchased on the TEP transmission line, due to lower wheeling charges and cost on the present 115 kV transmission line. 74. **Recommendations**. (1) Change this sentence to read: "Citizens has over committed to purchase 100 MW of firm transmission capacity. Only 11 to 50 MW capacity will initially be necessary for backup purposes in Santa Cruz County." (2) And insert footnote to read: "Citizens originally committed to purchase to 100 MW of transmission capacity. The current Santa Cruz County maximum peak load was 58.7 MW in June 2002. A 100 MW exceeds the maximum peak load of MW by at least 70%, which would still exceed the County's highest demand, at 3% annual growth, for more than 20 years in the future. Since 48 MW of backup generation exists in Santa Cruz County, at present only 10.7 MW of backup power is necessary on the highest demand days. From 11 MW to 50 MW, could possibly be used from the TEP Transmission line during the next 15 to 20 years, not 100 MW. Purchasing 100 MW electricity, based on the present TEP FERC-approved wheeling rate of $2.33/kW/month, are (2.33 x 1000 x 100 x 12) $2,796,000 per year. For 15,000 customers is (2796000 / 15000) or $186.40 per year per customer for backup electricity, thus it is recommended that the "Citizens" requirement be changed from 100 MW to be a maximum of 50 MW or lower."
1.2.1	1-8	1/3 to 5	75. **Comment**. The present 115 kV line has been upgraded from having a thermal capacity of 60 MW to 100 MW, thus being off-line for that purpose has been overtaken by events. There still could be maintenance purposes to use the TEP Transmission line. 76. **Recommendation**: Change this sentence to read: "The TEP 345 kV transmission line could be used when maintenance is necessary on the existing 115 kV line."
1.2.1	1-8	3 (all)	77. **Comment**. This sentence implies that more than "initial" capabilities will be requested for this fiber optic cable. The ACC CEC Application indicated it would be used for commercial communications, and such was testified during the ACC Line Siting hearings that this was one of the significant benefits of the 345 kV transmission system. 78. **Recommendation**. Add new sentence at end of paragraph. "The fiber optic cable will be used in future commercial communication applications."

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Comment No. 60-78 ***(continued)***

TEP's purpose and need has been revised in the Final EIS (see Section 1.2.1).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
1.2.2 Federal Agencies' Purpose and Need and Authorizing Actions	1-8	DOE. 1/7	79. **Comment**. The DOE, as lead Federal agency, issued the Notice of Intent to Prepare an Environmental Impact Statement and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Tucson Electric Power Company" on July 10, 2001. 80. **Recommendation**: Delete period and add "as indicated in the "Notice of to Intent to Prepare an Environmental Impact Statement and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Tucson Electric Power Company" in the *Federal Register* on July 10, 2001 (66 FR 35950 to 35952)."
1.2.2	1-8	DOE. 2 (general)	81. **Comments**. There are activities in the Department of Transportation that is appears coordination will be necessary before completion of the permit process for this system. 1. The **Federal Aviation Agency (FAA)** manages U.S. airspace, in particular, the FAA has designated Military Operation Area (MOA) named "Ruby One" under the operational responsibility of the Air National Guard managed by the 162nd Fighter Wing, Tucson, Arizona. This is 100 feet above ground, which means transmission lines will penetrate in this airspace, which has unique low level training capabilities. 2. **Office of Pipeline Safety** needs to determine the EMF, electrical field, and induced impacts of 2,000 MW capability in these lines, at 32 feet above ground, on both of the 908 pounds/square inch El Paso Natural Gasline (ELPG) line including its substations. The **minimum safe separation distance**, calculated by the ACC, was based on a 500 MW loading with a 45-foot height above ground. The Department of Homeland Security's US Border Patrol has concerns about the use of maintenance roads and visual markets to navigate which will increase human, pack-animal, and motorized traffic by illegal immigration into the US by terrorist, undocumented aliens (UDAs) and drug runners. **Recommendation**: Add coordination with the Department of Transportation including the Federal Aviation Agency (FAA) and the 162nd Fighter Wing, US Border Patrol and the Office of Pipeline Safety.,
1.2.2	1-9	USFS. 2/6 and 7.	82. **Comment**. There appear to be two types of use permits required by the USFS, similar to BLM. 83. **Recommendation**. To clarify, (1) in line 6, before "application" add "transmission line ROW land-use" and (2) in line 7, before "use" add "fiber optic communications ROW land-".
1.3.1 Issues Within Scope of the EIS	1-11	4/3 and 4	84. **Comment**. The correct name is the "Juan Bautista de Anza National Historic Trail." 85. **Recommendation**: add "National Historic" in line 4 after "Anza"
1.3.1	1-11	5/3 and 4	86. **Comment**. Other significant sites were not listed. 87. **Recommendation**. Before "and" add "Tumacacori National Historic Park,"
1.3.2 Issues Out of Scope of the EIS	1-12	2 (all)	88. **Comment**. This paragraph implies that because the Maestros Group proposal for a power plant in Nogales in Santa Cruz County, did not have air permit requests to the Arizona Department of Environmental Quality (ADEQ) or Pima County Department of Environmental Quality, that proposal could not be evaluated or assessed when comparing cumulative impacts of Alternatives. There is enough information in Maestros Group's Presidential Permit application to make basic assumptions about that system to be used in this analysis. The Mexican electricity company intends to procure 456 MW of energy by 2008 in the vicinity of Naco or Nogales with a request for proposal in 2004. 89. **Recommendations**. That the Maestros Group's Presidential Permit application for proposed combined cycle, natural gas turbine power plant, in or near the present Gateway Substation, with 100 MW for Nogales, Arizona, and 500 MW for Nogales, Senora be used in this analysis.

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Comment No. 79-80

The text is correct as written.

Comment No. 81

As discussed in Chapter 10 and Appendix A of the Draft EIS, consultations were conducted with the recommended agencies and organizations where appropriate.

Comment No. 82-83

The text is correct as written.

Comment No. 84-85

Section 1.7.1 of the Final EIS has been modified to include the full name of the Juan Bautista de Anza National Historic Trail.

Comment No. 86-87

The text is correct as written.

Comment No. 88-89

On May 10, 2001, DOE received an application for a Presidential Permit from the Maestros Group to construct a transmission line across the U.S.-Mexico border from a proposed power plant to be built in the Nogales, Arizona area. To date, Maestros Group has provided no additional information for DOE to continue processing their Presidential Permit application; as such, it is not considered a reasonably foreseeable action.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
1.3.1	1-12	2 (all)	(1) Delete this paragraph, 1.3.2 para 2.
1.3.2	1-12	4 (new)	(2) Insert a new paragraph at top of the page, in paragraph 1.3.2, to read "Five comments stated that the cumulative effects analysis (CEA) of the proposed project needed to consider a power plant in the vicinity of Nogales, Arizona. The Maestros Group Presidential permit application contains a description of a power plant in the Nogales area to serve the Nogales target areas, as required by 66 FR 35952, to contain a description of the second required Alternative necessary for this EIS."
1.3.2	1-12	5 (new)	(3) Add new fifth paragraph in paragraph 1.3.2 to read: **"A Cumulative Effects Analysis (CEA) will be completed as a part of this EIS. Each of the three Alternative routes proposed by TEP will be compared to the (1) Power Plant Alternative, and (2) No Action Alternative, as required by the Executive Office of the President Council on Environmental Quality (CEQ) *Considering Cumulative Effects Under the National Environmental Policy Act.* (CEQ 1997b)."**
1.3.2	1-12	2/3	90. **Comment**. Reference CEQ 1997 should be 1997b. 91. **Recommendation**. Change "1997" to read "1997b"
1.3.2	1-12	2/8	92. **Comment**. Reference PDEQ 2003 is given to a verbal with a Pima County Department of Environmental Quality. The requirement for the power plant is in Santa Cruz County.
Chapter 11	11-6	PDEQ 2003	93. **Recommendation**. Delete reference to PDEQ 2003 and Reference PDEQ 2003 in Chapter 11.
1.3.2	1-12	3/all	94. **Comment**. TEP testified during the ACC Power Plant and Transmission Line Siting Committee hearings, on several occasions, testified that 30 percent of the electricity on this transmission system would be from Mexico to the United States and that 70% would be from the US to Mexico. Further, after the major blackout on April 17, 2001, in both Sonora and Sinaloa, the Mexican C.F.E. manager was quoted in the newspapers saying that Sonora had several thousand megawatts of excess electricity, which as not a factor in this blackout caused by synchronization problems originating in Hermosillo, Sonora. 95. **Recommendation**: change third sentence of this paragraph to read "Thus, DOE considers the assertion by TEP that importing 30% of the electricity flow in these transmission lines, as claimed by TEP, to be speculative."
1.3.2	1-12	5 (all)	96. **Comment**. This paragraph seems to discount any alternative that does not "fulfill TEP's purpose and need." The purpose of an EIS is to weight the impacts of a project and various alternatives against the significant environmental impacts that such the target project. Obviously, the transmission lines are just one option to deliver electricity to customers. The requirement in the *Federal Register* "Notice of Intent" (66 FR 35952) dated July 10, 2001, to compare the "project" against two alternatives: (1) No Action Alternative, and " (2) Construction of a power plant in the U.S. closer to the U.S.- Mexico border with a shorter transmission line extending to the border, an alternative concept for supplying electric power to the target area." Thus, construction of a power plant in Nogales should be considered an Alternative and including in paragraph 1.3.1 and such comments deleted from paragraph 1.3.2. 97. **Recommendations** Change this paragraph to read: "Thirty-one commentators (or a smaller number, depending on how many comments reflected the local power plant Alternative, now in 1.3.1) suggested additional alternatives be considered in lieu of TEP's proposed project, a Local Power Plant Alternative and No Action Alternative. These alternatives included TEP exploring alternative sources of energy and promoting energy conservation. These suggested alternatives are not explicit enough to be considered as alternatives used in the comparisons in this EIS; however, both alternative sources of energy and promoting

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Comment No. 90-91

Based on the rewrite of Chapter 1, the CEQ 1997 reference that was in Section 1.3.2 of the Draft EIS has been deleted.

Comment No. 92-93

The Pima County Department of Environmental Quality (PDEQ) controls the air quality in Pima County. Information obtained from PDEQ was used in the analysis and as such, reference PDEQ 2003 is used to cite the information.

Comment No. 94-95

The Federal agencies do not have any information suggesting that any power plant construction in Mexico is reliant upon or otherwise connected to TEP's proposed project. Therefore, the potential for construction of power plants in Mexico is not a connected action and is not analyzed in Chapter 4, Environmental Effects, of the EIS. Refer to the response to Sky Island Alliance, Comment 14, for further discussion of power plant construction in Mexico.

Chapter 5, Cumulative Effects, of the Final EIS has been augmented to discuss the growth of electricity demand in Mexico and the United States and the potential for new power plants, and to describe qualitatively the potential impacts in the United States (including air quality impacts) from power plant construction in southern Arizona and Sonora, Mexico. Chapter 5 has also been revised to describe the regulation of power plants in Mexico (including coordination between the United States and Mexico), potential fuel sources, and associated emissions.

Comment No. 96-97

A new power plant in Nogales is not a viable alternative to a new, second transmission line. Therefore, the alternative of a new power plant is not evaluated in detail in this EIS (refer also to Section 2.1.5, Alternatives Considered But Eliminated From Further Analysis).

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			energy conservation are discussed, in general terms, in Chapter 2." (2) See 2.3.1 and 2.3.2, which will be discussion oriented paragraphs. See below.
1.3.2	1-12	6/all	98. **Comment**. This paragraph discussion concerns a much different form of "reliability" than that involving local electrical service in Nogales. These "reliability" discussions concern national grid reliability when the US Western and Mexican Grids are interconnected as proposed by TEP. TEP has proposed to interconnect the US and Mexican Grids with this single transmission system and to remove about 50 Mexican generation plants from the Mexican C.F.E. Northwestern Region, which includes all of the Sonora and Sinaloa States, to over 650 miles south of the US-Mexican Border. TEP has not proposed any synchronization conversion equipment in its proposed plan to link the US/Mexican Grids. Only by physical separation, by an actual disconnection of the C.F.E. Northwestern Region from Mexican Grid, can this be accomplished. TEP testified during the ACC Line Siting Hearings that they hoped the Mexican generation plants and transmission system will be compatible and operate with the US Western Grid. None of the C.F.E. power plants or transmission equipment has been certified to meet any US Standard or approved processes. Without an AC-DC-AC converter, then large transients can freely cross between these two systems. The AC-DC-AC converter proposed by Public Service Company of New Mexico (PNM) required 25 to 40 acres and cost about $160,000,000, (about twice this entire transmission system), present significant EMF, and natural environmental impact. In addition, on April 17, 2001, both Sonora and Sinaloa States had cascading electrical failures, as was presented during the ACC Line Siting Hearings, including translations of Mexican newspapers. The ACC electrical engineer indicated this was a federal government responsibility as his concerns were the local reliability in Nogales. 99. **Recommendation**. **This "reliability" issue has never been satisfactorily addressed by TEP. The public, including industrial organizations, is concerned based on several newspaper articles that discussed the three different "grid" interconnection options, with that proposed by TEP, having unacceptable reliability. Strongly recommend the rational and interconnection solution be presented in the Final EIS.**
1.3.2	1-12	7 (all)	100. **Comment**. This paragraph implies that "stage of decision making" impacts environment impacts. This is an erroneous assumption since the Public Service of New Mexico (PNM) Presidential Permit Application to the DOE provides the design characteristics, economic impacts, various criteria which use some of the same Right-Of-Way (ROW) at proposed by TEP. A comparison is necessary to determine the differences between these two proposals, to determine if none (No Action), one or two transmission systems are needed, and these Alternatives compared to the "Local Power Plant Alternative" required by the DOE. There are many features of the PNM transmission line system that are technically superior, such as inclusion of an AC-CD-AC converter station to keep the present Mexican electrical grid separate and independent of the US Western Grid. In addition, the capacity of the PMN system is for only 1,000 MW at 230 kV (found in Sonora Mexico), while the TEP system is for 2,000 MW at 345 kV (not existing in Sonora) transmission systems. The economic analysis from PNM shows significant increases in property tax revenue in Santa Crux County when compared to estimates for TEP's system (even though TEP has no estimates of property tax revenue changes in this Draft EIS).. 101. **Recommendations**. (1) Delete this 7th paragraph. (2) Add comparisons with the PNM transmission system that crosses both Pima and Santa Cruz Counties in the next update to this EIS. Without

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Comment No. 98-99

As part of DOE's decisionmaking process on whether to grant a Presidential Permit for the proposed project, DOE will determine whether the proposed project would adversely impact the reliability of the U.S. electric system. Also, before authorizing exports to Mexico over the proposed 345-kV facilities, DOE must ensure that the export would not impair sufficiency of supply within the United States and would not impede, or tend to impede, the coordinated use of the regional transmission system.

Comment No. 100-101

The consideration of impacts from the PNM proposal has been eliminated as described in Section 5.2 of the Final EIS.

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			this information, the cumulative environmental impacts of two transmission line systems cannot be compared by the DOE, USFS, BLM or the Arizona Corporation Commission decision makers. Nor can these decision makers make the required NEPA comparison with the Local Power Plant Alternative.
1.3.1	1-11	After 6th paragraph, New	(3) Add a new paragraph within section 1.3.1 (p. 1-11) to read: "Two commentators suggested coordinating routes and review processes with the Public Service of New Mexico's (PNM's) proposed transmission line project in Pima County, Santa Cruz County, and Sonora Mexico. The comparisons in Table 2.3-1 includes the impact of this Alternative. For the PNM information, their "pipeline" route and substation in Nogales were used in this comparison."
Table 2.3-1	2-30 to 2-41	New Column before No Action	(4) In Table 2.3-1, add a new column titled "PNM Pipeline Alternative" and the appropriate comparison information. (5) Add in the next version of this EIS, a comparison of the property tax changes for both Pima and Santa Cruz County, with breakouts by all impacted School and Fire Districts.
Chapter 2 Proposed Action and Alternatives	2-1	1/3	102. **Comment**. As worded, this action only indicates that a transmission line with be evaluated "to the U.S.-Mexican border." This line continues 60 miles south to Santa Ana, Sonora, Mexico. Impacts and decisions on the Mexican portion of this transmission system are critical and necessary to be designed, concurrently and coordinated with, the U.S. portion of the system. In additional, the significant environmental impacts in Mexico may have impacts, in particular, cumulative impacts on the U.S. side. Thus, the entire system, including Mexican Alternatives, needs to be included in this Chapter. If these Mexican routes have been designed and environmental impacts developed, to the same standards as required by NEPA, then inclusion of that study needs to be an appendix to this EIS. For example, there is not 345 kV transmission lines in the target area of Mexico. How will be work, additional substations necessary for converters, and interconnection with other power sources in Mexico, substations, and transmission line impacts must be included so decision makers can evaluate impacts of Mexican options on the U.S. and so that Mexican decision makers can evaluate U.S. options on their alternatives, with the final system representing the optimal of the two. 103. **Recommendation**. Before the period of the first sentence, add "and continuing to the designated substation in Santa Ana, Sonora, Mexico."
Chapter 2	2-1	2/3 and 4	104. **Comment**. The proposed project also includes a 115 kV transmission line to the Valencia Substation in Nogales, Arizona. 105. **Recommendation**. after "(Gateway Substation)" add "and a 115 kV single circuit line to the Valencia Substation"
2.1 Alternatives	2-1	1/7 to 9	106. **Comment**. There are four Alternatives to be addressed in the EIS, in addition to the No Action Alternative. 107. **Recommendation**. Change this sentence to read: "There are five Alternatives addressed in this EIS. These are TEP's preferred alternative, TEP's Western Corridor Alternative, TEP's Central Corridor Alternative, and a new TEP's Crossover Corridor Alternative; and the Local Power Plant Alternative; and the No Action Alternative."
2.1	2-1	1 (at end)	108. **Comment**. During the ACC Transmission Line Siting Committee hearings and in the Joint TEP-Citizens CEC Application, two Alternatives were provided for the 115 kV portion of the proposed system. These need to be included in this EIS, and a table, similar to Table 2.3-1 be included. 109. **Recommendation**. See comments below for new Table 2.3-2.
2.1	2-1	2 (all)	110. **Comment**. This draft EIS implies in this paragraph that "the 125-foot (38 meter) transmission line right-of-way (ROW)" will be or could be adequate for the 345 kV portions of the project. The 125-foot width for the ROW is based on two factors (1) the effects from a 500 MW electrical and

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Comment No. 102-103

See response to Comments 25-27 above.

As part of the analysis of potential impacts in the United States, DOE made the conservative assumption that there would be simultaneous construction in Mexico of a transmission line connecting to TEP's proposed project in the United States that could have air quality impacts in the United States. These potential air quality impacts are evaluated in Section 4.8.3. DOE is not aware of any other past, present, or reasonably foreseeable future actions in Mexico that could result in cumulative impacts in the United States. Likewise, DOE is not aware of any design or impact evaluation documents for the connecting Mexican portion of the transmission line that could be included as an appendix to this EIS.

Comment No. 104-105

The Final EIS have been revised to evaluate the proposed 115-kV transmission line between the Gateway and Valencia Substations in Nogales, Arizona as part of the proposed project.

Comment No. 106-107

See response to Comments 52-53 above.

Comment No. 108-109

The Final EIS has been revised to evaluate the proposed 115-kV transmission line route between the Gateway and Valencia Substations in Nogales, Arizona as part of the proposed project. TEP is not pursuing the alternate 115-kV transmission line and it is not evaluated in the EIS.

Comment No. 110-111

The ROW width of 125 ft (38.1 m) was established by TEP as part of their project design, which includes operating the transmission line at 500 MW total, the maximum level at which the proposed 345-kV transmission line would be operated (refer to the response to Border Power Plant Working Group, Comment 2).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			electromagnetic frequency (EMF) effects and (2) offset requirements between the transmission line ROW from the EPNG pipeline ROW.sff Due to capability of transmission of 2,000 MW (1,000 per circuit) on this system, the design must account for that level of power being transferred, even though a request to operate the system is initially planned at 500 MW. All values computed at 500 MW need to be revised to reflect 2,000 MW of peak long-term power being transferred through this system. The calculations in the ACC Line Siting Committee used NGI-103 were for 500 MW and 42 feet above ground, for only one of the two national gas pipelines in the easement, and need to be redone and agreed between TEP and the El Paso Natural Gas Company, the Arizona and Federal Office of Pipeline Safety, **prior to approval** in the Final EIS. 111. **Recommendations**: (1) Determine the appropriate "stand off" distance or minimum separation between the transmission and natural gasline ROW and this impacts all final siting decisions. (2) Change all references to the correct ROW.
2.1	2-1	4 and all 5 bullets under this paragraph	112. **Comments.** The set of "corridor identification" principals used by TEP were not followed in the selection of the TEP preferred alternative. In particular all of these principles were violated by the Western and Crossover Alternatives • First bullet – Stay within existing utility corridors was ignored from TEP Cypress Sierrita Substation to south of Ruby Road when it joins the EPNG gasline in the USNF designated utility corridor. From Pima County until last three miles to Nogales, and from Gateway to Santa Ana, Sonora is NOT within an existing corridor. • Second bullet – Be parallel to existing infrastructures was not followed in the path discussed under the first bullet. • Third bullet – Following existing legal or jurisdictional boundaries, was not done. • Fourth bullet – Avoid sensitive areas of biological or historic wealth was not followed as the National Forest region has the highest number of protected species of any of the routes, and • Fifth bullet – Avoid the viewshed of the most concentrated residential areas, may have been accomplished for the southern area, but the new growth in Sahuarita and southern Green Valley will be within the viewshed of these transmission lines. Since maybe just one of these five principles were followed when establishing the TEP preferred alternative, and only route approved by the ACC, then deletion of this paragraph is highly recommended. **There is no reason to list five design principles that were NOT followed.** 113. **Recommendation**: Delete Second paragraph, starting with "Commencing in 1995... " to the end of the page, after the fifth bullet.
2.1	2-2	1 and all 3 bullets under this paragraph	114. **Comments.** TEP evaluation of potential alignments considered three factors. • First bullet – Feasibility of construction and cost was not considered for the TEP preferred alternative as it is the most expensive and difficult to construct. • Second bullet – ability to acquire all regulatory permits – there are at least ten additional permits required for the TEP preferred alternative, several that have the highest probably if not being granted. • Third bullet – ability to meet TEP's purposes including providing sufficient power reliability in Nogales, Arizona is met by any second redundant route, as it is redundancy reliability as long as 100 MW, the maximum necessary load for Nogales, Arizona, for at least the next two decades. Since none of these considerations were more favorable for the TEP

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Comment No. 110-111 ***(continued)***

Refer also to the response to MM-4 in the public hearing transcript for Nogales, AZ September 26, 2003, 5 p.m. to 7 p.m. transcript.

Comment No. 112-113

The description of TEP's corridor and substation location identification process was provided by TEP, and was included in this EIS to provide background information on how TEP identified potential transmission line corridors. The merits of TEP's corridor identification process are beyond the scope of this EIS; the Federal agencies conducted an independent review of the transmission line corridors proposed by TEP, adding the Crossover Corridor as a result of public scoping and tribal input. The description of the corridor and substation location identification process remains in the EIS as relevant background information.

Comment No. 114-115

Refer to the response to Magruder Comment No. 112-113. The description of the factors used by TEP to evaluate potential transmission line alignments was provided by TEP, and remains in the EIS in Chapter 2 as relevant background information.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			preferred route, inclusion in the EIS is not recommended. 115. **Recommendation**. Delete this paragraph, starting with "TEP evaluated... " To the end of the paragraph, after the third bullet.
2.1	2-2	2 (all)	116. **Comment**. **There is no requirement to start at the South Substation**, since both the Bucknell and Cypress Serrita Substations could have provided a node for this network, at lower voltage 115 kV or 138 kV, while providing a 100 MW load, the maximum necessary for Nogales, Arizona. 117. **Recommendation**. Delete the second sentence. It is obviously not a requirement for meeting the system's needs.
2.1	2-2	4/1	118. **Comment**. **The principles above were deleted, since they were not met by TEP's proposed alternative.** 119. **Recommendation**. Delete "Using these principles,".
2.1.1 Western Corridor	2-2	1/1	120. **Comment**. The Western Route is the "default" DOE's preferred alternative which might change in the Final EIS. Thus, making this a declarative statement in the draft EIS maybe OK; however, until the DOE's Record of Decision (ROD) has been issued, no such statement is official. It was believed that the ACC's decision that only the Western Route was at all appropriate was intended. 121. **Recommendation**: Change "DOE's" to read "the Arizona Corporation Commission's (ACC) only approved route"
2.1.1	2-2 2-6	1/last line 1/first line	122. **Comment**. Reference is made to "Figure 3.1-1 (Existing Utility Infrastructure)."This should be Figure 3.11-1 123. **Recommendation**. Change "3.1-1" to read "3.11-1"
Figure 2.1-1 Close-up of Alternative Study Corridors near Sahuarita and Green Valley	2-3	Left side	124. **Comment**. The El Paso Natural Gasline is shown as a dashed line. In the "All Corridors" North-South segment, from Camino del Toro to the split into the Central and Western/Crossover Corridors, the route appears to be a straight line, which is not associated with the EPNG pipeline. In addition, the Caterpillar Test and Training facility needs to be shown. 125. **Recommendations**. (1) If the intended "All Corridors" segment, in this area, is separated and straight, then no change is necessary. If the two ROW are parallel, then the straight "All Corridors" segment should be redrawn to clearly show parallelism with the EPNG pipeline ROW. (2) Show the **Caterpillar Test and Training facility boundaries**.
Figure 2.1-1 Figure 2.1-4 Figure 3.7-1 Figure 3.7-3 Figure 3.11-1 Figure 4.2-3 Figure 4.2-7 Figure 1 Figure 2	2.3 2-9 3-71 3-74 3-91 4-24 4-30 C-3 C-4	Center 2-9 3-71 3-74 3-91 4-24 4-30 C-3 C-4	126. **Comment**. The incorporated area of the Town of Sahuarita has been greatly expanded. 127. **Recommendation**. Show the current limits the Town of Sahuarita.
Figure 2.1-2	2-4	Lower	128. **Comment**. The Tubac Fire Department station, Tubac Presidio State Historic Park and Tumacacori National Historic Parks are not shown. 129. **Recommendation**. Show the Tubac Fire Department station, Tubac Presidio State Historic Park and Tumacacori National Historic Parks locations.
Figure 2.1-3	2-5	Lower	130. **Comment**. The Rio Rico and Nogales Fire Department stations, nor is the Coronado National Forest Nogales Ranger Station are not shown. 131. **Recommendation**. Show the Rio Rico and Nogales Fire Department stations and the Coronado National Forest Nogales Ranger Station locations.
Figure 2.1-3 Figure 3.7-1 Figure 3.7-3	2-5 3-71 3-74	Lower Lower Lower	132. **Comment**. The "in-holdings" within the National Forest are not shown. 133. **Recommendation**. Show all "in-holdings" within the National Forest as white.

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Comment No. 116-117

Refer to the response to MM-8 in the public hearing transcript for Green Valley, AZ September 25, 2003, 3 p.m. to 5 p.m.

Comment No. 118-119

Refer to the response to Magruder Comment No. 112-115. The principles used by TEP remain in the EIS.

Comment No. 120-121

DOE correctly identified the Western Corridor as DOE's preferred alternative in the Draft EIS for the reasons stated (in light of TEP's preference and the ACC's decision to site TEP's proposed line along the Western Corridor). DOE accepted public comments on this designation through the Draft EIS public comment period, and has taken these comments into account in the Final EIS. DOE and each of the cooperating agencies are authorized to select their own alternative(s) for approval or denial in the ROD, regardless of the actions of other agencies or the designation of preferred alternatives in the Draft or Final EIS.

Comment No. 122-123

The reference to Figure 3.1-1 has been corrected to Figure 3.11-1 in the Final EIS.

Comment No. 124-125

The All Corridors segment is correct as shown. The Caterpillar Test and Training facility was added to Figure 2.1-1.

Comment No. 126-127

The limits of the incorporated area of the Town of Sahuarita have been expanded on figures throughout the EIS.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
Figure 1	C-3	C-3	
2.1.1	2-6	1/ (all)	134. **Comment**. This paragraph indicates that "transmission line tensioning and pulling and fiber-optic splicing sites… averaging 0.5 to 1.5 acres in size…estimated 12 sites outside the national forest…14 sites on the Coronado National Forest" These are not shown in a Figure or map. There is no table that shows the size of each and the totals for inside and outside the National Forest. 135. **Recommendations**. (1) Please provide the locations of the fiber-optic splicing sites on a map and a table that tabulates the appropriate data about each of the 26-transmission line tensioning and pulling and fiber-optic splicing sites. (2) Add the following new sentence at the end of this paragraph. "See the map in Figure 2.1.1-X and the summary in Table 2.1.1-Y of tensioning and pulling sites and fiber-optic splicing sites along the Western Corridor."
2.1.1	2-6	1/1 to 2	136. **Comment**. There is a reference to fiber-optic splicing sites in section 2.2.3. A review of 2.2.3 fails to find reference to fiber-optic slicing sites and how such activities would temporarily disturb land. 137. **Recommendations**. (1) Either in 2.1.1 or in 2.2.3 please add a discussion as the impact and disturbance of land that the fiber-optic sites would have. (2) Further, please provide the locations of the fiber-optic splicing sites on a map.
2.1.1	2-6	3/7	138. Comment. The last part of this sentence indicates that the TEP 345 kV **transmission** line passes "just east of the existing TEP Cyprus Sierrita Substation." Thus, there are questions concerning interconnection with that 138 kV substation. From an overall reliability viewpoint, a 345/138 kV transformer would provide another option for TEP to route power, establish backup routes between sites, and to make a more robust network. The latest TEP "Ten Year Transmission Plan" provided to the ACC does not contain any reference for such an interconnection in the next decade. 139. **Recommendation**. That TEP consider such an interface to make the proposed TEP transmission line system more reliable.
2.1.1	2-6	5/6	140. **Comment**. The 115 kV transmission line from the Gateway Substation to the Valencia Substation was omitted in the discussion. 141. **Recommendation**. Before the last sentence in this paragraph, add a new sentence to read: "A single-circuit, 115 kV transmission line will continue east from the Gateway Substation to the Valencia Substation in Nogales on Grand Avenue."
2.1.2 Central Corridor	2-6	1/2	142. **Comment**. This implies that the Central Route continues along the EPNG pipeline for 43.2 continuous miles. The TEP ACC CEC Application had a dog-leg in the vicinity of Tubac for the Central Route with the Eastern Route going along the EPNG pipeline. As shown in TEP 2001 (ACC CEC Application) Exhibit A-4b, Segment 9 leaves the El Paso Gas pipeline going SSW, from a point just south of the Agua Linda I-19 exit, then going south, from a point about west of the Chavez Siding I-19 exit, to the west of Cerro Pelon, a small, "butte-like" hill, continuing south to Aliso Spring Road, then southeast to rejoin the EPNG pipeline to the west of the Tumacacori I-19 exit. Segment 10, labeled Eastern Route, continues along the EPNG pipeline route. 143. **Recommendation**. At the end of this sentence, before the period add "except for Segment 9 (TEP 2001, Exhibit A-4b) which separates to west from the EPNG pipeline, to pass west of Cerro Pelon, in the vicinity of Tubac, and rejoins EPNG pipeline, west of the Tumacacori I-19 exit."
2.1.2	2-7	1/12	144. **Comment**. This paragraph indicates that "transmission line tensioning and pulling and fiber-optic splicing sites… averaging 0.5 to 1.5 acres in size…estimated 12 sites outside the national forest…17 sites on the Coronado National Forest" These are not shown in a Figure or map. There

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Comment No. 128-129

The Tubac Presidio State Historic Park and Tumacacori National Historic Parks have been added to Figure 2.1-2. Fire stations are not typically environmental or cultural resources or locations of special interest and are not included on the maps.

Comment No. 130-131

Fire stations and ranger stations are not typically environmental or cultural resources or locations of special interest and are not included on the maps.

Comment No. 132-133

The in-holdings of private land on the Coronado National Forest are shown in Figure 1.1-4. Other maps in the EIS that include the Coronado National Forest Tumacacori EMA do not show in-holdings for purposes of presenting simplified, user-friendly maps.

Comment No. 134-135

The exact locations of the tensioning and pulling sites and fiber-optic splicing sites would depend on the final precise siting of the ROW and support structures, which would occur after each agency has issued a ROD, as stated in Section 3.1.1 of the Final EIS. This would allow for mitigation of potential environmental impacts by resource specialists. Section 2.2.4 (Shield Wire and Conductor Stringing) states that stringing and tensioning sites and fiber-optic splicing sites would be selected to avoid environmentally sensitive resources, in coordination with land owners and managers. The description of the number, size, and general selection of tensioning and pulling sites presented in the Final EIS is adequate for evaluating potential environmental impacts.

Comment No. 136-137

Fiber-optic splicing sites are discussed under Shield Wire and Conductor Stringing in Section 2.2.4. Refer to the response to Magruder Comment No. 134-135 regarding the exact siting of the fiber-optic splicing sites.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			is no table, which shows the size of each and the totals for inside and outside the National Forest. 145. **Recommendations**. (1) Provide the locations of the fiber-optic splicing sites on a map and a table that tabulates the appropriate data about each of the 21-transmission line tensioning and pulling and fiber-optic splicing sites. (2) Add the following new sentence at the end of this paragraph. "See the map in Figure 2.1.2-X and the summary in Table 2.1.2-Y of tensioning and pulling sites and fiber-optic splicing sites along the Central Corridor."
2.1.3	2-8	1/6	146. **Comment**. This paragraph indicates that "transmission line tensioning and pulling and fiber-optic splicing sites… averaging 0.5 to 1.5 acres in size…estimated 12 sites outside the national forest…12 sites on the Coronado National Forest" These are not shown in a Figure or map. There is no table, which shows the size of each and the totals for inside and outside the National Forest. 147. **Recommendations**. (1) Provide the locations of the fiber-optic splicing sites on a map and a table that tabulates the appropriate data about each of the 24-transmission line tensioning and pulling and fiber-optic splicing sites. (2) Add the following new sentence at the end of this paragraph. "See the map in Figure 2.1.3-X and the summary in Table 2.1.3-Y of tensioning and pulling sites and fiber-optic splicing sites along the Crossover Corridor."
2.1.4 Alternatives Considered but Eliminated from Further Analysis	2-8	1/1	148. **Comment**. The expression "alternative identification process" was discussed in section 2.1, third paragraph. Based on discussion above, this process was not followed, thus deleted. 149. **Recommendation**. Delete ""alternative identification process," as this process was not followed for TEP's preferred alternative corridor.
Figure 2.1-4	2-9	Lower center	150. **Comment**. The Tubac Presidio State Historical Park (S.H.P.); Robert Damon Rio Rico, Sonoita Creek and San Rafael Valley State Parks (S.P.), and Sonoita State Conservation Area (S.C.A.) are not shown. The Tumacacori N.H.P. should be correctly titled as the "Tumacacori N.H.P. 151. **Recommendation**: Show the Tubac Presidio S.H.P., Sonoita Creek S.P. and San Rafael Valley S.P. similar to how the Tumacacori N.H.P is indicated in this figure
2.1.4	2-10	2/(all)	152. **Comment**. The ACC Line Siting Hearings requires public notices be printed in local newspapers. These Public Notices, published in April 2001, did not show the Eastern Route, which resulted in newspaper articles. TEP issued a Newsrelease that it considered the Eastern Route as "not viable for consideration" before May of 2001. Thus, the ACC Line Siting Hearing, which started May 5, 2001 and the Scoping Meetings in July 2001, were held long after the "Eastern Route had been dropped from consideration. In fact, the ACC Siting Hearing in June 2001 dismissed all but the Western route as having any possibility of consideration for a CEC. The fourth numbered paragraph of "reasons" states that "this route is more visually obtrusive than the Western or Central Corridors as expressed by residents of Green Valley, Tubac, and Tumacacori at DOE public scoping meetings and Arizona Corporation Commission (ACC) hearings for the proposed project." 153. **Questions**. (1) Why did TEP wait so long to inform the DOE that the Eastern Route had been recommended to be removed from further analysis? (2) Why did TEP let this charade continue so long, until July 3, 2002, with the DOE? 154. **Recommendation**. (1) Let TEP provide these answers. (2) Delete the fourth "reason" and the entire fourth numbered paragraph.
2.1.4	2.10	No. 4 (all)	

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Comment No. 138-139

Refer to the response to MM-8 in the public hearing transcript for Green Valley, AZ September 25, 2003, 3 p.m. to 5 p.m.

Comment No. 140-141

The Final EIS have been revised to evaluate the proposed 115-kV transmission line between the Gateway and Valencia Substations in Nogales, Arizona as part of the proposed project, analyzed under each resource area in Chapter 4, Environmental Effects.

Comment No. 142-143

The Central Corridor is correct as shown in all figures in the EIS (see for example, Figure 1.1-4), and is correctly described in the referenced text.

The information on routes presented during the scoping process is intended to be preliminary in nature and is not intended to be a final determination of routing or topics that ultimately are to be analyzed in the Draft EIS. In fact, one of the stated purposes of scoping is to refine alternatives and issues to be addressed. The analysis that occurred between scoping and publication of the Draft EIS refined the actual Central Corridor to be considered for environmental effects.

Comment No. 144-147

Refer to the response to Magruder Comment No. 134-135.

Comment No. 148-149

Refer to the response to Magruder Comment No. 112-113. The description of the factors used by TEP to evaluate potential transmission line alignments was provided by TEP, and remains in the EIS as relevant background information.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
2.1.4	2-10	2/No. 1/fourth line	155. **Comment**. This first reason indicates "a single event such as a wildfire could cause the loss of both transmission lines, completely cutting off electricity transmission to Nogales, Arizona." This fails to account for the present local generation capabilities of 48 MW, which is sufficient for over 99% of the time as backup generation. Thus, loss of all "transmission" does not lose electricity to Nogales. 156. **Recommendations**. (1) In line four, delete the following: ", completely cutting off electricity transmission to Nogales, Arizona" (2) Adding in place, "which would make parts of Santa Cruz County and Nogales, Arizona dependent upon its backup 48 MW of local generation during such a transmission line outage."
2.1.4	2-10	No. 1/4	
2.1.4	2-10	No 1/4	
2.1.4	2-10	2/No. 3/(all)	157. **Comments**. This third reason indicates that lengthy outages of the existing Citizens [now UNS Electricity] transmission line, given its proximity, thereby cutting off transmission to Nogales during construction." Most transmission line companies repair and replace "hot" conductors, to 500 kV, using various equipment to hold the "hot" line while stringing the replacement. This is a routine practice. 158. **Questions**. (1) Does TEP have the capability repair and replace "hot" transmission lines? (2) If not, could TEP consider hiring a company that can do this, as this is a common world-wide industry practice? (3) Since such outages would be planned, why would the local generation not be able to hold the load, with its substations forming a temporary island?
2.1.4	2-10	No. 3 (all)	159. **Recommendation**. This reason is invalid. Delete this third "reason."
2.1.4	2-10	5 (all)	160. **Comment**. This sentence contains two concepts and omits another factor in this decision as discussed in the recommendation. 161. **Recommendation**: Replace paragraph number 4, with new paragraphs 4 and 5 to read as follows: "4. This route is more visually obtrusive than the Western or Crossover Corridors as expressed by residents of Santa Cruz Valley during DOE Scoping Meetings. "5. The Eastern route was declared infeasible by TEP prior to commencing the ACC Transmission Line Siting Committee hearings and was never considered viable."
2.14 Construction of a Power Generating Station Near Nogales	2-11	4 (all)	162. **Comment**. This paragraph discusses construction of a power plant alternative near Nogales which TEP rejects for including in this version of the draft EIS. The *Federal Register*, 66 FR 35952, states that "**The EIS will also consider alternatives** to the proposed [TEP] transmission lines, including, to the extent possible: (1) No Action Alternative…(see presently numbered section 2.1.5) (2) **Construction of a powerplant** in the U.S. closer to the U.S.-Mexico border with a shorter transmission line extending to the border, an alternative concept for supplying electric power to the target region." **Such an Alternative may not rejected by TEP "because it would not fulfill TEP's purpose." This EIS is being developed under the management of the Department of Energy.** This Alternative is required by the DOE Notice to Prepare an Environmental Impact Statement…" in the *Federal Register*. In fact, **this "fifth" Alternative must be in all tables, all assessments, and all analysis in this EIS**. Anything less, such as described on page 2-10 (5th paragraph). "Because TEP has asserted that it does not want to pursue a given alternative route and DOE will not decide otherwise, it would be a waste of time and resources to evaluate an alternative that eh applicant rejects…The Applicant bears the risk that if it changes its mind in the future… additional environmental review would be required." Supporting the viability of a local power plan, during the ACC TEP Line

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Comment No. 150-151

The suggested features have not been added to the map for purposes of presenting simplified, user-friendly maps. The Tumacacori National Historic Park has been removed from this map for consistency purposes.

Comment No. 152-154

TEP's application to DOE on August 17, 2000 for a Presidential Permit included three proposed corridors the Western, Central, and Eastern. DOE began the NEPA process based on this application. During the preparation of the EIS, TEP determined the Eastern Corridor to be unsuitable, and subsequently requested that DOE remove the Eastern Corridor from the EIS as a viable alternative. TEP's analysis and consultation with DOE and the cooperating agencies on the Eastern Corridor took approximately 2 years, concluding with TEP's July 3, 2002, letter. The reasons cited by TEP in its letter requesting removal of the Eastern Corridor from further analysis are correctly summarized.

Comment No. 155-161

The reasons cited by TEP in its letter requesting removal of the Eastern Corridor from further analysis are correctly summarized. The Eastern Corridor was eliminated from further consideration in this EIS because of the reasons given by TEP in a letter to DOE (TEP 2002a) that rendered it infeasible (see Section 2.1.5 for further discussion of elimination of the Eastern Corridor).

Comment No. 162-165

Section 1.2 explains the roles of TEP and the Federal agencies in developing alternatives for the proposed project. Where an applicant seeks a permit for a particular business project, such as the case with TEP's proposed project, the Federal agencies generally limit their review of alternatives to those that would satisfy the applicant's proposal and decide whether that proposal is or is not worthy of receiving a permit. The Federal agencies do not review alternatives that are not within the scope of the applicant's proposal. Similarly, the agencies do not direct the applicant to alter its proposal; instead, the agencies decide whether a permit

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			Siting Hearings, testimony by the ACC's Mr. Jerry Smith, stated **such a power plant**, if it had connections to two substations, and thus met the N-1 "best practices rule" it **would be adequate to meet the "second transmission line" requirements of ACC Order 62011**. In fact, such a power station would give Nogales triple redundancy, with a predicted transmission line outage rate of 0.0004 second per year. Thus, a local power plant has superior reliability, when compared to the predicted 1.74 seconds of transmission outage per year for a second redundant transmission line, which is NOT a function of voltage, but redundancy. These predicted figures use the worst-case analysis, based on the actual 115 kV line's 17 outages during the period of highly unreliable service in Nogales, when over 10 hours of outage resulted from transmission line failures during a five-year period. It should also be noted, that many of these outages were human caused and independent of the actual transmission line. During the same five years, there were 2,304 distribution outages that were the primary cause of low reliability in Santa Cruz County. The proposed line is the most expensive solution as it provides over 35 times more power than could be used in Santa Cruz County (Nogales), only 2% to 5% of its capacity will ever be used at one time, and it will raise rates by $30 per month per resident for 2 hours of "backup" usage per year. Further, during these hearings, it was repeatedly pointed out to TEP that there was absolutely NO way it's proposal would meet the December 31, 2003 deadline since it took nearly 9 months just to get started in this EIS.
21.4	2-11	4(all)	163. **Recommendations**: (1) Delete the paragraph, "Construction of a Power Generation Station Near Nogales" since this Alternative is required by the DOE and is a logical competition for a transmission line, either generate or transport electricity to users. (2) Add new paragraph 2.1.5 be added (see next comment below), (3) Renumber present paragraph 2.1.5 to 2.1.6.
2.1.5 (new) Local Power Plant Alternative	2-12	New (all)	164. **Comment**. Since the Local Power Plant Alternative is required, based on the requirements of the Federal Register, and such an alternative is essential to conduct analysis, evaluation and make decisions on the merits of generation versus transmission environmental impacts. 165. **Recommendation**. Add new section 2.1.5 to read as follows: **"2.1.5 Local Power Plant Alternative** As required by the Notice of Intention to prepare this Environmental Impact Statement (66 FR 35950-35952), an alternative shall be included for construction of a power plant in the U.S. closer to the U.S. Mexico border with a shorter transmission line extending to the border, an alternative concept for supplying electric power to the target region. Since this alternative was not proposed by TEP, then a set of assumptions are necessary for this power plant. First, there are two target areas, Nogales, Arizona and the same Santa Ana Substation, Sonora, Mexico. The Nogales power plant generation capability will be to have up to 100 MW. The Santa Ana portion of the power plant generation will be 456 MW, to be requested by C.F.E. in a request for proposals to be issued in 2004 for delivery starting April 2007 for a 25-year contract. Second, the TEP's locations will be used by the Power Plant Alternative, with the Gateway substation for this natural gas combined cycle, air cooled, turbine, using standard turbines, such as General Electric LM-2500 series, that meets or exceeds all US environmental requirements. Third, the power plant will have two 115 kV transmission lines, one to the Valencia Substation, using the same ACC authorized corridor and the second to the Southern Rio Rico Substation, about 8 miles to the north. The

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Comment No. 162-165 ***(continued)***

is appropriate for the proposal as the applicant envisions it. It is not for the agency to run the applicant's business and to change the applicant's proposal, but only to evaluate the environmental effects of the applicant's business proposal as offered. Accordingly, the EIS evaluates a reasonable range of alternatives, which include the full spectrum of alternatives that would satisfy the applicant's proposal.

A new power plant in Nogales is not a viable alternative to a new, second transmission line. Therefore, the alternative of a new power plant is not evaluated in detail in this EIS (refer also to Section 2.1.5, Alternatives Considered But Eliminated From Further Analysis).

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			115 kV line will use the same EPNG corridor as used by TEP, for most of the distance, until about parallel with the South Rio Rico substation, then east to interconnect, after passing over Interstate 19."
2.1.5 (old) changed to 2.1.6	2-12	All	166. **Comment**. The No Action Alternative section, should be last. 167. **Recommendation**. Renumber section 2.1.5 to "2.1.6".
2.1.5 (old) changed to 2.1.6	2-12	1/8 to 11	168. **Comment**. The last sentence appears to confuse a transmission line to Mexico, requiring a Presidential Permit, with the ACC required "second transmission line" to Nogales, required by ACC Order 62011. 169. **Recommendations**. To clarify, make the following changes: (1) in line 9, before "transmission line" add "345 kV" (2) in line 10, before "'transmission line" add "115 kV" (3) in line 11, before the period add "; however, TEP would have to have to appear before the ACC Power Plant and Transmission Line Siting Committee with a new application for any transmission line rated at 115 kV or higher."
2.2.1 Substation Upgrades and Additions and Fiber-Optic Regeneration Site	2-12	1/5	170. **Comment**. The South Substation is adjacent to the Tohono O'odham San Xavier Indian Reservation. The Tohono O'odham Nation has expressed concerns about changing transmission lines within five miles of their reservation. 171. **Question**. Where have the complaints of this Indian Nation been addressed, in particular, their concern about transmission line within 5 miles of their reservation, in the EIS? 172. **Recommendation**. Add new sentence at end of paragraph to read: "The South Substation is south of West Pima Mine Road. To the north is the Tohono O'odham San Xavier Indian Reservation."
2.2.1	2-12	1 (all)	173. **Comment**. The South Station meets the requirements to be classified as a "critical facility" since it will initially have operational capabilities that will include over 40% of the peak electricity power requirements for City of Tucson and Pima County. When, the proposed TEP transmission line and its interconnections, at full operational capability to the South Substation it is required to consider the final configuration of South Substation and it's impact on the Santa Cruz River. As discussed, a 100-foot expansion to the southeast is required for 500 MW, or will this also be adequate for 2,000 MW? 174. **Questions**. (1) If additional an additional expansion for 1,500 MW is required, where will this be located? Has the expansion of the South Substation been approved by the US Corps of Engineers, under Sections 401 and/or 404? (2) Has Pima County Flood Control and Town of Sahuarita reviewed and approved the plans for expansion of South Substation? 175. **Recommendations**. (1) Provide details as to expansion of the South Substation in the vicinity of the Santa Cruz River. (2) Show the 100-year and 500-year flood plains on map showing the 500 MW and 2,000 MW configurations for the TEP Transmission line interconnection. (3) Provide a copy of the response in an Appendix, from the US Corps of Engineers, under Sections 401 and/or 404, concerning the South Substation expansions, including an initial 500 MW operational and the total 2,000 MW capabilities. (4) Provide the responses in an Appendix, from Pima County Flood Control and the Town of Sahuarita, concerning South Substation expansions, including an initial 500 MW operational and the total 2,000 MW capabilities.
2.2.1	2-12	1/5	176. **Comment**. The South Substation is adjacent to the Santa Cruz River, thus flooding is always a concern.

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Comment No. 166-167

Section 2.1.4, Alternatives Considered but Eliminated from Further Analysis, in the Draft EIS has been renumbered to Section 2.1.5 in the Final EIS for logical flow of the alternatives.

Comment No. 168-169

The text is correct as written.

Comment No. 170-172

Sections 3.4.2 and 4.4.2 address Native American concerns. The San Xavier District of the Tohono O'odham Reservation is shown on Figure 2.1-1.

Comment No. 173-175

The proposed project would be operated at 500 MW (refer to the response to Border Power Plant Working Group, Comment 1). The RODs to be issued by each agency would require compliance with all applicable regulations, including any requirements of the Town of Sahuarita or Pima County Flood Control.

Comment No. 176-177

Environmental effects of the proposed project are described in Chapter 4, not Chapter 2 (see Section 4.7 for Water Resources).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			177. **Recommendation**. Add new sentence at end of paragraph to read: "See Appendix C for the Floodplain Assessment information concerning the South Substation."
2.2.1	2-13	3/6 to 9	178. **Comment**. The last sentence discusses "light spilling offsite." This needs to conform to all Arizona, Pima County and Town of Sahuarita Lightning Statues and Ordinances. 179. **Recommendation**. "All outdoor lighting at the South Substation will conform with all current all lighting statutes, ordinances and regulations, in particular, the types of lights, shielding requirements, intensity and other requirements."
2.2.1	2-13	4/1	180. **Comment**. The designs with respect to the floodplain will need to be submitted to the US Army Corps of Engineers as a part of their Section 401 and 404 reviews. 181. **Recommendation**. Please provide a copy of these designs in an Appendix for public review, in particular, by the Town of Sahuarita, the Tohono O'odham Nation, Pima County, and US Army Corps of Engineers and subsequent comments and/or approvals in an Appendix for public review.
2.2.1	2-13	4/3 and 4	182. **Comment**. There are various hazardous peteroleum products, including oil-filled equipment, installed at the South Substation. 183. **Questions**. (1) What are these fluids, the quantities for each, their purpose and safeguards used? (2) Where will these be located with respect to the Santa Cruz River, including distance? (3) How containment will be determined for each product? (4) Will any of these fluids be able to reach the Santa Cruz River? 184. **Recommendations**. Please provide a table listing this data, buy fluid type.
2.2.1	2-13	4/4 to 7	185. **Comment**. An alarm system will be installed; however, it is not described. 186. **Questions**. (1) Which of these fluids will be in alarmed systems? (2) What will these alarms monitor? (3) Where is the "operations center" how far is it from South Substation? (4) What is the response time for a qualified person to reach the Substation from the operations center and time required to contain the "worst case" leak? (5) Are any of these fluids carcinogens, such as PCBs? (6) What will be the impact on this "alarm system" from a 100-year and 500 year flood? (7) What is the amount of liability insurance that TEP carries that covers the liabilities from dangerous spills? 187. **Recommendations**. Please include the answers to the above questions prior to the final EIS to local "first responders" in the Town of Sahuarita, Pima County and the City of Tucson.
2.2.1	2-13	4/8	188. **Comment**. TEP indicates that the Oil Spill Contingency and Spill Prevention Countermeasure and Control plans will be updated to include specific procedures for both the South and Gateway Substations. 189. **Questions**. (1)How will personnel be trained to carry out these new procedures? (2) How will personnel qualifications be determined and tracked to ensure adequate response capabilities are available 24/7/365? (3) Where will the cleanup equipment be stowed and maintained? (4) What "first responders" are included in your plans? (5) Have these "first responders" been informed as to the hazardous materials at the South Station?

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Comment No. 178-179

The RODs to be issued by each agency would require compliance with all applicable regulations.

Comment No. 180-181

As discussed in the EIS, TEP would acquire all necessary permits and approvals for construction in a floodplain. It is premature to attempt to provide the level of detail requested by the commentor.

Comment No. 182-184

Refer to Sections 3.11.2 and 4.11.2 regarding waste management impacts. TEP's Spill Prevention Control and Countermeasures Plan would prevent, control, and minimize impacts from a spill.

Comment No. 185-193

The level of detail of information provided in the EIS is adequate to assess environmental impacts.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(6) What notifications of these materials, plans, processes and cleanup techniques will be provided to the "down stream" Tohono O'odham Nation? 190. **Recommendation**. Please provide a copy of these updated plans that specify the specific mitigation procedures for these substations in an Appendix.
2.2.1	2-13	5/1	191. **Comment**. This sentence water flow runoff will be directed by grading. 192. **Questions**. (1) Where will this runoff be directed? (2) What percent will end up in the Santa Cruz River during 10, 100, and 500-year storms? 193. **Recommendation**. Please show how water flow runoff will be directed?
2.2.1	2-13	5/3 and 4	194. **Comment**. Since there is very little room for berms and barriers that don't cause changes in the Santa Cruz River, when it overflows its banks. 195. **Question**. How will these berms and barriers not increase flooding at the Molybdenum processing plant, just across the Santa Cruz River from South Substation? 196. **Recommendation**. Please show how these berms and barriers will cause river flow changes that will not negatively impact close structures, such as the Molybdenum processing plant, across the Santa Cruz River.
2.2.1	2-13	5/4 to 6	197. **Comment**. This last sentence discusses "storm water mitigation measures" and suggests that retention ponds be considered to contain runoff. 198. **Questions**. (1) Where would storm water retention ponds be installed? (2) What amount of rainfall will these retention ponds be designed to contained? (3) Does this cover the 500-year requirements? 199. **Recommendation**. Please answer these questions with engineering diagrams or changes to the text. Include any justification for use of retention ponds.
2.2.1	2-13	6 (all)	200. **Comment**. The fiber-optic system appears not designed but such information is required before the US Forest Service and Bureau of Land Management can issue their Records of Decision. 201. **Questions**. (1) What is the purpose of the fiber-optic system? (2) Where will its components be installed? (3) Where will information flow into and out of the fiber-optic system? (4) Will the fiber-optic system be used for SCADA? If so, what information is exchanged, what are the nodes, update rates (complete), and operational concept for the SCADA system including which stations will be manned or automated? (5) Will the Valencia Substation be a node on the SCADA system? (6) What is the backup for a fiber-optic SCADA system? (7) Will the fiber-optic system be used for commercial communications, if so, what are the nodes, update rates, and operational concept for the commercial system? (8) If there is a commercial communications goal, what additional permits required (and list in Section 9)? (9) Who will be the owner, operator, and maintenance companies involved with a commercial system? (10) What is the purpose of the "regeneration" site? (11) How often will personnel be required to visit or work at the regeneration site? 202. **Recommendations**. Please explain the purpose of this system, how it will work, and provide a diagram showing its components, locations, and its interconnections with the transmission system and other, external locations, such as TEP's operations station. Please include a block diagram with

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Comment No. 194-196

The proposed expansion of the South Substation would not be expected to: (1) raise the flood elevation in the surrounding area; (2) change flow patterns of the Santa Cruz River; nor (3) introduce significantly new hazardous material. TEP has completed a study to determine engineering measures that could be implemented to provide flood protection to the South Substation. (TEP 2002c) The results of that study indicate a variety of protective measures (ranging from reducing erosion with soil cement to building a structural concrete retaining wall) that can be implemented to better protect the South Substation from flooding. TEP would take appropriate measures to maintain the reliability of the electric transmission system.

Comment No. 197-199

The level of detail of information provided in the EIS is adequate to assess environmental impacts.

Comment No. 200-202

The level of detail of information provided in the EIS is adequate to assess environmental impacts. The purpose of the fiber optic system is described in Chapter 1, and a description of the facility is provided in Section 2.2.1. Maintenance requirements are described in Section 2.2.5.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			function flows shown and labeled. Please show these locations on a map.
2.2.2 Transmission Line Structures and Wires	2-13	entire	203. **Comment**. There appears to be only two types of structures: monopoles and lattice structures. Many other types exist and these options need to be considered. For example, **XXXX get transmission line article!!** 204. **Recommendation**. Please delete the word "self-weathering" in line 1, "Dulled, galvanized" in line 2 and capitalize "Steel" in line 2.
2.2.2	2-13	1/1 and 2	205. **Comment**. The terms "self-weathering" and "Dulled, galvanized" are defined on the next page (with suggested changes) as the color for each of these structures. 206. **Recommendation**. Please delete the word "self-weathering" in line 1, "Dulled, galvanized" in line 2 and capitalize "Steel" in line 2.
2.2.2	2-13	1/5	207. **Comment**. Acreage is an inappropriate word to describe 25 square feet. 208. **Recommendation**. Change "acreage" to read "footprint"
2.2.2	2-13	1/11	209. **Comment**. Three variations of monopoles are indicated but their characteristics are not shown or provided. In addition, such information is also required for the 115 kV transmission line monopoles to be installed in Nogales, Arizona. 210. **Recommendation**. Please provide a table which shows following, as a minimum, for each type of monopole: ***Table 2.2.2-1 Lattice Tower Characteristics*** Monopole Characteristic / Tangent Structure / Turning Structure / Deadend Structure Height (above ground) / 140 ft (43.0 m) / XXX ft (XX.X m) / XXX ft (XX.X m) Depth (below ground) / XXX ft (XX.X m) / XXX ft (XX.X m) / XXX ft (XX.X m) Length of Arms - Neutral Ground wires / - XX ft (X.X m) / - XX ft (X.X m) / - XX ft (X.X m) - Conductors / - 28 ft (8.5 m) / - XX ft (X.X m) / - 28 ft (X.X m) Distance between Arms (top to bottom) / 10 ft, 28 ft, 28 ft (Xm, Ym, Z m) / X ft, Y ft, Z ft (Xm, Ym, Z m) / X ft, Y ft, Z ft (Xm, Ym, Z m) Number of Conductors / 6 ft (X.X m) / X ft (X.X m) / X ft (X.X m) Minimum height of Conductor above ground / 32 ft (X.X m) / 32 ft (X.X m) / 32 ft (X.X m) Length of Insulators / 11.6 ft (X.X m) / X ft (X.X m) / X ft (X.X m) Diameter (top/bottom) / X ft/ y ft (Xm/Ym / X ft/ y ft (Xm/Ym / X ft/ y ft (Xm/Ym Size of Footprint / 25 sq. ft (XX sq m) / X ft/ y ft (Xm/Ym / X ft/ y ft (Xm/Ym Total weight (lbs) / XXXX lbs (XXX kg) / XXXX lbs (XXX kg) / XXXX lbs (XXX kg)
2.2.2	2-14	1/1 and 2	211. **Comment**. Three variations of lattice towers are indicated but their characteristics are not shown or provided. 212. **Recommendation**. Please provide a table which shows following, as a minimum, for each type of lattice tower: ***Table 2.2.2-2 Lattice Tower Characteristics*** Lattice Tower / Tangent Structure / Turning Structure / Deadend Structure Height (above / 140 ft (XX.X m) / XXX ft (XX.X m) / XXX ft (XX.X m) Depth (below ground) / XXX ft (XX.X m) / XXX ft (XX.X m) / XXX ft (XX.X m) Length of Arms / XXX ft (XX.X m) / XXX ft (XX.X m) / XXX ft (XX.X m) Distance between / 10 ft, 10 ft, 24 ft, 24 ft / W ft, X ft, Y ft, Z ft / W ft, X ft, Y ft, Z ft Number of / 6 ft (X.X m) / X ft (X.X m) / X ft (X.X m) Minimum height of / 32 ft (X.X m) / 32 ft (X.X m) / 32 ft (X.X m) Length of Insulators / 11.6 ? ft (X.X m) / X ft (X.X m) / X ft (X.X m) Diameter (top/bottom) / 30 ft/ y ft (Xm/Ym / X ft/ y ft (Xm/Ym / X ft/ y ft (Xm/Ym

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Comment No. 203-208

The types of towers described are those that are included in TEP's proposal. The suggested text changes are not appropriate.

Comment No. 209-212

A description and drawing of the proposed 115-kV structures have been added to the Final EIS. The Draft EIS (Section 2.2.3) indicates that the variations of the structure types are visually very similar, and thus the additional information requested is not necessary.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			Diameter (top/bottom) | 30 ft/ y ft (Xm/Ym | X ft/ y ft (Xm/Ym | X ft/ y ft (Xm/Ym
			Size of Footprint | 3,600 sq. ft (XX sq m) | X ft/ y ft (Xm/Ym | X ft/ y ft (Xm/Ym
			Total weight (lbs) | XXXX lbs (XXX kg) | XXXX lbs (XXX kg) | XXXX lbs (XXX kg)
2.2.2	2-14	2/(all)	213. **Comments**. These first two sentences discuss "self-weathering" color for monopoles to make them look like wooden utility poles. In view of the lack of trees or other cover material along most routes, use of a "dulled, galvanized" color on the surface would make these structures less visible when the sky is the background. 214. **Questions**. (1) Why hasn't each monopole site been examined to determine if "self-weathering" or "dulled, galvanized" color would be preferred? (2) What other colors can be used to reduce visibility of monopoles? (3) Can monopoles have a lower section that is self-weathering and its upper section dull, galvanized? 215. **Recommendation**. Revise the visual simulations in Section 4.2 needs to compare "dulled, galvanized" versus "self-weathering" color options and provide in the maps, which color style has less visual impact. Delete all but the last sentence in this paragraph that should be reworded to read: "Refer to Section 4.2 for a complete discussion of visual impacts, structure colors, and pole treatments."
2.2.2	2-14	4/3 to 5	216. **Comment**. This sentence indicates that each circuit has a 1,000 MW capability. The total capability of the entire system is 2,000 MW. 217. **Questions**. (1) Doesn't' the thermal capability control the maximum capability for the 345 kV elements of this system? (2) Will 500 MW be the initial operational capability for the whole 345 kV system? (3) Is each of the 345 kV circuits are capable of transmitting 1,000 MW? If so, then isn't the total 345 kV system maximum capability 2,000 MW but will initially be operated at 500 MW? (4) What other factors in this EIS are related to the capabilities of the system? (5) Is there any reason why all design and environmental factors don't reflect the maximum capability of 2,000 MW for the 345 kV system? If not, then will TEP complete another EIS to reflect these maximum capabilities? 218. **Recommendation**. Change this sentence to read: "Each circuit has a thermal capability of supplying 1,000 megawatts (MW), but the double circuit would be initially operated to transmit a total of 500 MW for operations and reliability purposes. The system maximum capability of 2,000 MW is reflected in this document."
2.2.2	2-14	4/3	219. **Comment**. The reference WECC 2003 in Chapter 11, includes a URL to a web site. Unfortunately, to access this document, one needs a password and ID, which is not available. 220. **Recommendation**. Place the appropriate part of the reference in an Appendix so that reviewers can access the document or provide the ID and password here or in Chapter 11, References.
2.2.2	2-14	5/2 and 5	221. **Comment**. The two neutral ground wires are installed between each monopole and lattice tower. Arizona is very dry and special grounding methods are required in desert environments. Santa Cruz County has the highest number of lightning strikes in Arizona. 222. **Questions**. (1) What is the "grounding subsystem" for the transmission system, in terms of grounding locations and how the "ground wire" go to ground? (2) Will the grounding system require both preventative and corrective maintenance, such as after a lighting strike? (3) What ways will TEP used to minimize grounding system maintenance while retaining highly reliable ground system?

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Comment No. 213-215

Refer to the response to MM-2 in the Green Valley, AZ September 25, 2003, 7 p.m. to 9 p.m. public hearing transcript.

Comment No. 216-218

The maximum level at which the proposed 345-kV transmission line would be operated is 500 MW (refer to the response to Border Power Plant Working Group, Comment 2).

Comment No. 219-220

The referenced portion of the WECC website has been printed and placed in the administrative record for the proposed project.

Comment No. 221-223

The level of detail of information provided in the EIS is adequate to assess environmental impacts.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(4) What special measures are required to meet the lightning strike requirements for Santa Cruz County? (5) Which are the grounding differences required along each route as a function of soil resistively, frequency of lightning, etc.? (6) How will underground cables, pipes and other structures be protected from inducted voltage, system grounds and lightning strikes? 223. **Recommendation**. Please describe the grounding subsystem, its capability to ground "shorts in the system" and the lightning protection system for the entire system, including each structure.
2.2.2	2-14	5/7	224. **Comment**. The locations of fiber-optic splicing sites are unknown. 225. **Question**. How many and where will these sites be located? 226. **Recommendation**. Please show the fiber-optic splicing sites on a map.
2.2.2	2-14	5/8	227. **Comment**. The locations and characteristics of fiber-optic splicing boxes on the monopoles and lattice towers are unknown. 228. **Questions**. (1) How many and where will these splicing boxes be located on monopoles and lattice towers? (2) How big are these boxes? (3) How often will maintenance personnel be required to service the fiber-optic boxes? (4) Are any of the monopoles or lattice structures to be used for "cell" or other wireless communications means? If so, how will these be maintained? (5) What will be the process used by TEP to request permits for any additional appendages? 229. **Recommendation**. Please show the fiber-optic splicing boxes on a picture of each type of structure, monopole and lattice.
2.2.3 Transmission line construction	2-14	Prior to first paragraph	230. **Comment**. The ACC requires that a **Construction Mitigation and Restoration Plan** be filed with the ACC Docket Control **before any construction on this project may commence.** See prior Comments above under section 1.2.1, page 1-7, and third paragraph, for the exact wording of ACC Order No. 64356, Condition 12. From the Siting Hearings, this plan is to be distributed so that it can be reviewed and integrated into all aspects of this project. Thus, submission within the next version of the draft EIS will permit this review. If submitted independently of this process, such coordination, synergy, and integration will be lost, as conflicts will result. Thus, such a plan needs to be included in this EIS, preferably as a stand-alone appendix, and the vague, non-specific, and very general statements in section 2.2.3 will be replaced by a work plan, detailed and specific with respect to actual road construction plans, and the same plan that will be used for the construction phase. Since this is a "construction plan" it will need, as a minimum, a Schedule, Tasks to be Accomplished, Required Resources (personnel and equipment), Start and Stop Dates, etc. Any other approach will not achieve the goals. In particular, the proposed TEP's "**Mitigation**" parts of this plan are **critical** for the federal government to consider PRIOR to drafting their Records of Decision (RODs) and the granting of many of the other permits and approvals indicated in Chapter 9 of the EIS. 231. **Recommendations**. (1) The ACC-required Construction Mitigation and Restoration Plan must agree with this section of the EIS, and since it is required **before** construction, it should be included in the next draft version of this EIS because this is of vital interest to the federal decision makers, local government permit agencies. (2) Add a new paragraph, prior to the first paragraph of 2.2.3 to read as follows: "See Appendix X for the details of the required "Construction Mitigation and Restoration Plan" used for construction planning, transmission line
New	New	New Appendix "X"	
2.2.3	2-14	New Paragraph before present first	

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Comment No. 224-226

The precise locations of the splicing sites have not yet been determined, but they would be selected to avoid environmentally sensitive resources.

Comment No. 227-229

The level of detail of information provided in the EIS is adequate to assess environmental impacts.

Comment No. 230-231

Each agency will state any required mitigation measures in their respective RODs, based on the mitigation measures presented in Section 2.2.6 of the EIS, and any additional mitigation measures that the agency deems necessary.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
		paragraph	construction, and restoration. This plan is required by Condition 12 of the ACC Certificate of Environmental Compatibility (CEC), ACC Order No. 64356and will also satisfy parts of other CEC Conditions (see Table 1.2.1-1) to • Mitigate specific environmental and pole impacts (Condition 4), • Consolidate the implementation details of the mitigation measures included in various required reports of the Harris Group (Conditions 5 and 6) and additional recommendations (Condition 7), • Define the on-site roles and authority of the approved archaeologist required to manage cultural and historical preservation actions, • Define the on-site roles and authority of the approved biologist (Condition 8) required to mitigate efforts for any endangered, threatened or sensitive species impacted by the project (Condition 9), • Ensure consultations with the Arizona State Historical Preservation Office (SHPO) to advise mitigation efforts for historical sites (Condition 10), • Specific locations of each monopole and lattice structure (Condition 11), satisfy all the goals of Condition 12, • Incorporate and manage any impacts of possible technical changes that will impact planning, construction and restoration activities (Conditions 13 and 14), • Consolidate the filing of the Final EIS (Condition 15) by including this Plan in the Final EIS, • Show how TEP will measure and ensure compliance with this plan to reduce or prevent environmental impacts (Condition 16), • Show the schedule to meet the three-year expiration date of the CEC (Condition 17), • Confirm that safety liability issues have been resolved by consultations with the El Paso Natural Gas company to prevent accidental explosions or fires caused by electricity and electromagnetic radiation, induced currents and preservation of the corrosion prevention measures that will ensure gasline and natural gas substation safety including meeting the minimum 100 foot separation of all transmission line structures including conductors, from the edge of the gasline ROW (Conditon 18), • Address TEP's participation as a consulting party with DOE, SHPO, state and federal land managing agencies to ensure compliance with 36 C.F.R. 800 to reach a finding of the effect and to resolve adverse effects (Condition 22), • Confirm how consultations and the conflict resolution process concerning potential impacts to historical properties, particularly traditional cultural places present or adjacent to the proposed corridor, with Native American Tribes (Condition 24), • Show the geographic area effected by the project, final ROW and buffer zone, new and existing access roads, material source pits (if any) and equipment staging areas (Condition 25), • Sponsor the necessary studies to complete the historical site identification effort as part of the federal or state compliance process. This may include a cultural resources survey, archaeological testing, or ethnographic study performed under the direction of professionals that meet the Secretary of Interior's qualification standards and permitting requirements of the appropriate land-management agencies (Condition 26), • Sponsor, if a historic property cannot be avoided, the necessary studies or take the appropriate actions to lessen or mitigate the impacts as part of the federal or state compliance process. The may include archaeological data recovery(*i.e.*, excavations), archival research and structure documentation (Condition 27), • Allow Arizona State Stewards, volunteer-staffed SHPO program, to

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			periodically inspect the sites present within the corridor for vandalism or damage after construction and in conjunction with the land-managing agency, if any (Condition 28), • Submit a letter annually, identifying which conditions in the CEC have been met, to the ACC, (Condition 29), and • Show Compliance with the ACC CEC Conditions since "The authority to construct facilities granted by this Commission Decision shall be revoked and the associated CEC rendered null and void in its entirety if (a) the Applicants, their successor(s) or assignee(s) legally challenge any condition herein, or (b) fail to comply with any condition herein as determined by the Commission. (Condition 30)."
2.2.3	2-14	All	232. **Comment**. An important element in constructing such projects requires the expertise of the actual construction contractor who brings his professional knowledge and skills to facilitate meeting both system and environmental requirements. The major activities in the first paragraph do not agree with the activites in Table 2.2-1 nor in the subparagraphs in this paragraph. 233. **Questions**. (1) What are the qualifications required by TEP for its transmission line construction contractor? (2) Has TEP selected its transmission line construction contractor? TEP testified during the ACC Line Siting Hearings that it would hire an outside contractor for this role. (3) Was this transmission line construction contractor selected as a result of a competition (RFP, proposal) process? (4) Has the selected transmission line construction contractor participated in the drafting and planning in section 2.2.3? (5) When will the construction contractor actively participate with TEP to write a coherent proposal on transmission line construction? (6) When will the major activities in the first paragraph be rewritten to agree with the activites in Table 2.2-1 and in the subparagraphs in this paragraph? 234. **Recommendation**. TEP **should actively involve its transmission line construction contractor in this EIS review process**. Such comments must be solved now as the design is being completed, in order to make following the resultant EIS more viable, easier to follow, to reflect the contractor's best business practices, and produce a meaningful EIS.
2.2.2 Figure 2.1-1 Figure 2.1-2 Figure 2.1-3	2-14 2-3 2-4 2-5	5/7 to 9 Left map Left map Left map	235. **Comments**. Slicing sites are not found on maps. 236. **Recommendation**. Show and annotate each spicing site on the maps.
2.2.3 2.2.3	2-14 2-15	1/(all) 1/(all)	237. **Comments**. These two paragraphs fail to provide, at best, "rough" schedule of key activities. It is very incomplete, not planned month by month, and fails to show project planning has commenced. The statement "**the project would be completed approximately 12 to 18 months after construction begins**" clearly indicates that this project has NOT been planned, resources allocated, actions planned to the ability to predict completion within a 50% (6 months period). This is **unsatisfactory** is TEP has been working on this project since 1995 and is not ready to begin. There is no agreement with the first two paragraphs and the remaining parts of this section or with Table 2.2-1. Resources, including manpower, vehicles, and helicopters, and supply deliveries have to be planned, scheduled, and coordinated. That has NOT been done. 238. **Questions**. (1) How many months are required from approval of the last ROD to Operational Date and to final cleanup date? (2) How many months will each phase take?

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Comment No. 232-242

The information provided in the sections of the EIS cited by the commentor is consistent. The level of detail of information provided in the EIS is adequate to assess environmental impacts.

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<table>
<tr><th>Paragraph</th><th>Page</th><th>Para/ Line Nos.</th><th>Comments, Questions (if necessary), and Recommendation</th></tr>
<tr><td></td><td></td><td></td><td>(3) When are the design, test, and operational reviews scheduled?
(4) What is the manpower loading per month by skill?
(5) When will project planning finally begin (it hasn't in this EIS, it should be completed before submitted the initial application and at the very latest prior to the draft EIS)?
(6) Will this project accomplish all the steps, phases and activities in the ACC Citizens Project Plan? If not, why not?
(7) When will helicopters be used to insert personnel and material?
239. <u>Recommendation</u>. Please show at least 100 events with key milestones or so on a Gantt or Network chart for this project that answers the above basic planning steps for a project of this magnitude. The Citizens Plan of Action has a basic list of activities that are missing in this section. Resources, including vehicles and helicopters need to be planned to the same degree as personnel.</td></tr>
<tr><td>Table 2.2-1 Typical Personnel and Equipment for Transmission Line Construction

Table 4.9-1 Peak Attenuated Noise Levels (dBA) Expected from Construction Equipment</td><td>2-15

4-96</td><td>All

All</td><td>240. <u>Comments</u>. This is a "typical" list of equipment and personnel used in constructing a transmission line system. This table FAILS to give any confidence that TEP is ready to commence construction. The equipment in this table does not agree with those in Figure 2.1-1 and Table4.9-1, for example:
<table>
<tr><th>Table 2-2-1</th><th>Figure 2.2-1</th><th>Table 4.9-1</th></tr>
<tr><td>Flatbed truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Crawler bulldozer</td><td>Wheeled bulldozer</td><td>Bulldozer</td></tr>
<tr><td>Jeep with auger</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Backhoe</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Side boom crane</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Equipment trailer</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Water spray truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Digger truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Loader</td><td>Loader</td><td>Loader</td></tr>
<tr><td>Track air drill</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Tractor trailer</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Rough terrain crane</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Cement truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>All terrain crane</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Boom truck</td><td>Not shown (maybe</td><td>Not included</td></tr>
<tr><td>Concrete ready-mix truck</td><td>Not shown</td><td>Concrete Mixer</td></tr>
<tr><td>Crew cab truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Line truck (bin body)</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Lace boom crane</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Crew cab flatbed</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Wire puller (truck mounted)</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Crawler dozer</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Splicing buggy</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Wire tensioner (truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Tractor and tandem axle</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Pilot wire stringing truck</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Tractor trailer</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Aerial lift</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Farm tractor with disc</td><td>Not shown</td><td>Not included</td></tr>
<tr><td>Not included</td><td>Water truck</td><td>Not included</td></tr>
<tr><td>Not included</td><td>Back hoe loader</td><td>Not included</td></tr>
<tr><td>Not included</td><td>Wheel Tractor Scraper</td><td>Scraper</td></tr>
<tr><td>Not included</td><td>Dump Truck</td><td>Dump Truck</td></tr>
<tr><td>Not included</td><td>Excavator</td><td>Not included</td></tr>
<tr><td>Not included</td><td>Crane (what type?)</td><td>Crane</td></tr>
<tr><td>Not included</td><td>Not shown</td><td>Heavy trucks</td></tr>
<tr><td>Not included</td><td>Not shown</td><td>Jackhammer</td></tr>
<tr><td>Not included</td><td>Not shown</td><td>Generator</td></tr>
<tr><td>Not included</td><td>Not shown</td><td>Grader</td></tr>
<tr><td>Not included</td><td>Not shown</td><td>Pile Driver</td></tr>
<tr><td>Not included</td><td>Not shown</td><td>Fork Lift</td></tr>
</table></td></tr>
</table>

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			Not included | Not shown | Fork Lift From the above, it appears that these equipment lists were not coordinated. 241. **Questions**. (1) Why don't the Activities in this table agree with the activities in the prior paragraph and with the subtitles in 2.2.3? (2) Why is there no consistency between these three equipment lists? (3) Why is a "typical" list of personnel and equipment used the best available at this stage? If not available, determine which equipment and personnel are to be used prior and complete prior to the Final EIS. (4) Where are each of these vehicles discussed in this paragraph, as most are only mentioned in this table? (5) Why don't the vehicles in Figures 2.2-1 agree with those in Table 2.2-1? (6) Why is different equipment, such a pile drivers, generators, included in Table 4.9-1 that is not found in the Figure/Tables 2.2-1? (7) Where are the persons and activites associated with the fiber-optic subsystem? (8) Are these same vehicles to be used in the Mexican part of this system? If not, please provide the data on the Mexican vehicles. (9) What are the specific dust control measures TEP will employ in Mexican construction activities? 242. **Recommendations**. (1) Rewrite the Table 2.2-1, in a more standard "project management" format, such as a resource table from MS Project, to schedule both resources and people for the entire system, including the Mexican half-system. (2) Show major Events and all project Milestones. (3) Show a manpower-loading chart, with monthly loading, by different types of construction and management workers. (4) Show the Network Chart, with start/stop dates (or months after commencement, MAC), resources, and which Events precede others. (5) Show with the Network Chart, the matching Gantt planning chart for the project as a whole, including Events necessary for completion in Mexico. (6) For each vehicle, include a table to indicate weight, when used, required at each site, and air transportability capabilities (to avoid one-use road construction). (7) Include the fiber-optic subsystem construction activites. (8) Include in the schedule that shows the activities of the biologist, archaeologist, and other uniquely required personnel that are involved with inspections of activites, at each phase of construction. (9) The "noisy" equipment in Table 4.9-1 needs to match the corrected Table/Figure 2.2-1s.
Table 2.2-1	2-15	All	243. **Comment**. There is no indication in this table activites necessary for the fiber-optic subsystem. 244. **Recommendation**. Include the fiber-optic subsystem activites.
2.2.3 ROW Access	2-15	(all)	245. **Comment**. During the ACC Line Siting Hearings, there was an objection filed by Caterpillar Company. The TEP Common Routes in Pima County cross the Caterpillar Test Facility. That company has not granted permission for the TEP ROW to cross this parcel of property. The Caterpillar Test facility needs to be shown on maps. 246. **Questions**. (1) Has Caterpillar provided access to cross the Caterpillar Test facility in a part of the designated ACC-approved corridor or with it has to leave that corridor? (2) If the TEP route avoids the Caterpillar Test range, which requires it to leave the ACC-approved corridor, what actions will TEP do, since it cannot leave the Corridor? (3) Will TEP request the ACC to modify the Corridor? 247. **Recommendations**.

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Comment No. 243-244

Fiber-optic construction would be a minor part of construction and would be accomplished as part of the overall project construction.

Comment No. 245-247

See response to Comments 124-125 above.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
Figure 1.1-4 Figure 2.1-1 Figure 4.2-3	1-5 2-3 4-24	Left map Left map Whole figure	(1) Provide answers to the above three questions. (2) Show the Caterpillar Test facility boundary on the maps (Figures 1.1-4, 2.1-1, and 4.2-3) indicated, as a minimum.
2.2.3 ROW Access	2-15	1/7 to 11	248. **Comment**. In addition to those listed, road access may require permission of the State Land Trust for access to state lands, Pima or Santa Cruz County for access to use heavy equipment on county roads, and the City of Nogales and Town of Sahuarita. Further, the El Paso Natural Gas Company has an easement for their natural gasline that all routes will need access. 249. **Recommendation**. In line after "property owners," add "State Land Trust Department, Pima County, Santa Cruz County, City of Nogales, Town of Sahuarita, El Paso Natural Gas Company,"
2.2.3 ROW and Structure Site Clearing and Grading	2-18	1/5	250. **Comment**. The term "proposed access way" is used. There are several other terms that define easements, right-of-way, gasline safety distances, etc. that are best illustrated in a diagram. Further, this is necessary for both the 345 kV (2,000 MW maximum capacity load) and the 115 kV (100 MW) transmission lines between Gateway and Valencia Substation. 251. **Question**. What is a "proposed access way? 252. **Recommendations**: (1) Please define this term, both here and in Chapter 12. If it is related to "right-of-way" (ROW) or "easement", then please show these on an excerpt of a chart so that the "width" of each is clear. (2) Since there also is a relationship between the transmission line ROW and the El Paso Natural Gas (EPNG) ROW, please also show how they are related and the total width of all of these, including EPNG ROW, TEP ROW, safety area in between, (3) When necessary, show the total ROW or easement differences for lattice towers and monopoles. (4) In addition, show a cross-section of the lattice tower and monopole, lowest conductor, at its maximum sag, or distance above ground to the outer edge of TEP's ROW.
2.2.3 ROW and Structure Site Clearing and Grading	2-18	1/7	253. **Comment**. This sentence indicates that the Right of Way (ROW) would be "bladed as necessary to ensure safe working conditions." The ROW should not be indiscriminately bladed, only the area in the vicinity of the foundation. Blading roads shall be accomplished in the required "Construction Mitigation and Restoration Plan" required to be submitted to the ACC Condition 12 of the ACC Certificate of Environmental Compatibility. [see Recommendations under 1.2.1 above for page 1-7, paragraph 3] 254. **Recommendations**: Prior to the final EIS, TEP shall provide a copy of this required Construction Mitigation and Restoration Plan that will show the details of all areas to be "bladed" including all roads as an appendix to the EIS, preferably in the next submission of the draft for review prior to final reviews by decision makers.
2.2.3 Construction Yard and Material Handling sites	2-18	1/7	255. **Comment**. The last sentence indicates that a different construction area is required for monopoles. 256. **Questions**. (1) What are the construction area requirements for a monopole? (2) Are construction areas different when sky crane helicopters are used for monopoles? (3) Are construction areas different when sky crane helicopters are used for lattice towers? (4) Are there other factors which impact construction areas, other than local or remote "construction" of the tower or pole? If so, please explain and discuss the benefits of smaller construction areas. 257. **Recommendation**. Please provide the construction area requirements for a monopole and describe the differences in construction area

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Comment No. 248-249

"Land managers" has been added after "property owners" to clarify that lands may be managed by various entities.

Comment No. 250-252

Proposed access way is a road to access the proposed project. The level of detail of information provided in the EIS is adequate to assess environmental impacts.

Comment No. 253-254

Refer to the response to Comment 230-231 above.

Comment No. 255-257

The area required both for construction of a monopole and lattice tower are given in the sentence cited by the commentor. These estimates of maximum disturbance apply for all methods of construction.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			requirements for sky crane provided towers and poles.
2.2.3 Construction Yard and Material Handling sites	2-18	2/(all)	258. **Comment**. This sentence states that three temporary construction sites of 3 acres or less and that a temporary construction lay down yard of 80 acres will be required. They are not shown on maps. 259. **Questions**: (1) When will each of these construction sites and the lay down yard be used? (2) What is the rehabilitation Mediation Measures and schedule for each of these sites? (3) Will the sky cranes be operated with all three of these temporary construction sites? 260. **Recommendation**. (1) Show the locations of the three temporary construction sites and the lay down yard on maps. (2) Show the dates for each construction site use and rehabilitation schedules in the "Construction Mitigation and Restoration Plan appendix.
Figure 2.1-1 Figure 2.1-2 Figure 2.1-3 New	2-3 2-4 2-5 New	Left map Left map Left map Appendix X	
2.2.3	2-18	2/4 and 5	261. **Comment**. This sentence implies that an 80 acre laydown yard would be near the Arivaca Road and I-19 Interchange in Amado. This area is the "visual gateway" to Santa Cruz County and Pima Counties, an area where commercial activities depend on tourism and transients at three major restaurants. Such a site, if visible from I-19 or Arivaca Road would significantly degrade this economic activity. 262. **Questions**: (1) Will sky crane helicopters ever use this laydown yard to move towers or monopoles? (2) Will sky crane helicopters operate from this yard to move people and/or equipment? 263. **Recommendations**.
2.2.3	2-18	2/4 and 5	(1) Change this sentence to read: "A temporary construction laydown area of approximately 80 acres (32-ha) will be neatly laid out, about two miles east of Amado, at least one mile from Arivaca, and not visible from either I-19 or Arivaca Road. Upon completion of construction activity, the site will be completely returned to its natural environmental state, including re-planting with the native seeds, for all vegetation types damaged during construction. The landowner and the appropriate County (Pima or Santa Cruz, depending on the location) zoning inspector will have to approve the revegetation plan before construction begins. No utility equipment or material, including petroleum products, will be permitted to remain." (2) Discuss how, when, why and how often sky crane helicopters will frequent this laydown yard.
2.2.3 Foundation Evacuation and Installation	2-18	1 (all)	264. **Comments**. Several kinds of foundations are discussed in this paragraph; however, which structure sites and foundation types are not provided. This EIS should have all the geological information necessary to decide foundation evacuation details, if not, then provide that information in the geological and soils section. 265. **Questions**. (1) What are the types of foundations that will be used at each pole/tower site? (2) What are the characteristics, in tabular form, for each foundation type and equipment necessary for each foundation type? (3) Which foundation type is least to most disruptive to the environment in terms of volume of material evacuated, moved, stored, kept from washing away, returned, and compacted? (4) Where will the excessive dirt or rock evacuated be place or will it be removed to another site? (5) Does this EIS have the geological and soil information necessary to

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Comment No. 258-260

The temporary construction sites and construction laydown area are not shown on any of the project maps. However, the EIS does specify the approximate location of the temporary laydown area and construction sites. These sites would be used prior to and during construction for storing of construction materials and equipment.

The start of construction is dependent on several factors, including approval by Federal and state agencies, and therefore is not known at this time.

A detailed list of standard mitigation practices to be employed by TEP is shown in Table 2.2-2. TEP would implement standard mitigation practices in areas cleared or disturbed during construction. The temporary construction sites and the laydown area would be allowed to revert back to its original state or reseeded/revegetated to prevent the introduction or spread of invasive species. Erosion control measures would be implemented in accordance with TEP's Erosion and Sediment Control Plan.

Comment No. 261-263

The temporary construction laydown yard would be sited on previously disturbed land and would be used to store construction equipment and materials including transmission line towers. The EIS points out that helicopters would be used when large cranes could not access tower locations by road. For the Western and Central Corridors, existing, improved, and new access roads would be used to bring poles to structure sites. TEP intends to use helicopters only for stringing conductors on the Western and Central Corridors. However, for the Crossover Corridor Alternative, helicopters would be used to transport 20 to 25 structures to the Peck Canyon portion of the Crossover Corridor due to the terrain in this area of the site.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			decide on foundation type? 266. **Recommendations**. (1) Provide answers to the above in the next EIS. (2) Provide rationale for selection of foundation type by soil and geological characteristics at each tower/pole site. (3) Provide additional geological and/or soil information, if necessary, to this EIS so that it can be reviewed when assessing foundations and excavation process.
2.2.3 Foundation Evacuation and Installation	2-18	2/7	267. **Comment**. The final sentence indicated, continued "until the desired depth is attained." 268. **Question**. What is the "desired depth?" 269. **Recommendation**. Include the "desired depth" information so that decision makers and understand what geological conditions determine the depth requirements for each structure.
2.2.3 Structure Assembly/ Erection	2-19	1/1	270. **Question**. Are "large cranes" required on-site if sky cranes are used? 271. **Recommendation**. If so, please discuss how the "large crane" will be transported to the site.
2.2.3 Structure Assembly/ Erection	2-19	1/ 5 and 6	272. **Comment**. This states that "angle" and "dead-end" monopoles can not be transported by helicopter. 273. **Question**. Where are all the "angle" and "dead end" monopoles located, at which sites? 274. **Recommendation**. Please discuss how each of the angle and dead end monopoles will be assembled and erected.
2.2.3 Structure Assembly/ Erection	2-19 2-19	2/1 2/1	275. **Comment**. The ACC Order does not "require" but it permits the use of lattice towers. 276. **Recommendation**. Change the word "require" to "permits" to clarify. See actual ACC Order quote in next comment.
2.2.3 Structure Assembly/ Erection	2-19	2/2 to end of paragraph	277. **Comment**. T he ACC Order No. 64356 states in Condition 11 "Applicants [TEP] shall: ....(c) use monopoles except in locations where use of lattice towers would minimize detrimental impacts upon the total environment." . The "primary criteria" used by TEP used to identify locations for lattice towers depends upon road accessibility. That criteria may fail to "minimize overall environmental impacts" such as historic ruins, environmentally sensitive species, etc. thus this singular criteria fails to meet the ACC Order. This might be convenient for TEP, but this criterion fails to minimize the total environmental impacts. Further, the last sentence in this paragraph contradicts the repeated testimony by TEP that helicopters would be used for all monopoles and lattice towers in the National Forest.
Figure 1.1-1 Figure 1.1-2	1-2 1-3	dimensions dimensions	278. **Questions**: Since lattice towers and monopole are the same height (Figures 1.1-1 and 1.1-2), and the monopole has its lowest conductors higher (140 ft – 56 ft) than the lattice tower (140 ft – 68 ft), use of "lattice towers at locations such as road crossings" is misleading. [insulator length not included since figure 1.1-2 fails to show this, suggest revise Fig 1.1-2].
2.2.3 2.2.3	2-19 2-19	2/2 2/2 to end of paragraph	279. **Recommendations**. (1) Place a period after "impacts" and (2) Replace "the primary criteria that TEP would use to identify locations for lattice towers would be whether the location is readily accessible by road..." to the end of this paragraph with "The Construction Mitigation and Rehabilitation Plan, in Appendix [TBD], contains the specific environmental rationale for selection of each lattice tower. Conveniences for TEP or costs are unacceptable rationale for siting lattice towers as neither considers environmental impacts. This plan will show the actual siting locations for each monopole and lattice tower. Helicopters will be use to transport structures to minimize environmental impacts, especially, when road access is not acceptable. Helicopters will transport all structures, when new road construction will cause detrimental impacts to the environment. In

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Comment No. 264-266

Since a preferred alternative has not been agreed upon, the discussion on foundation types is general because a geotechnical investigation for the preferred alternative has not been conducted. The scope of the geology and soils section of the EIS is limited to general information about the geology, soils, and geological features in the project area and vicinity. To determine the depth to bedrock and the soil types at each proposed pole location, site-specific geotechnical investigations must be conducted at each proposed pole location. These investigations will be conducted once the Presidential Permit is approved and a preferred alternative is agreed upon.

Comment No. 267-269

The depth would depend on local geologic conditions.

Comment No. 270-271

Several cranes would be used at the site during construction. These cranes include the side boom crane, the all terrain crane, rough crane, rough terrain crane, and the truck mounted crane. Cranes would be transported to the site on large flat-bed trucks.

Comment No. 272-274

Details on monopole types to be used and pole locations are not provided in the EIS. If an action alternative is selected for implementation, these decisions would be made after the RODs from each Federal agency, during the design phase of the project.

Comment No. 275-276

The text is correct as written.

Comment No. 277-279

As stated in the discussion of Structure Assembly/Erection in Section 2.2.4, lattice towers would be used in locations such as road crossing because their use would allow for a greater distance between tower locations. TEP's

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			general, lattice towers will not be used if they have higher maintenance requirements."
2.2.3	2-19	New After revised 2nd ¶	(3) Provide a summary table of the number of lattice towers and monopoles for each corridor in this part of the draft EIS.
2.2.3	2-19	Same as above	(4) Provide a map that shows the actual locations for lattice and monopoles for each corridor, with symbols, structure type (including tangential, angle, deadend), structure number or ID designation, and transportation mode (truck or helicopter or mixed helicopter/truck) for each tower or pole between the four substations (South, Gateway, Valencia, Santa Ana Sonora). (5) Indicate the total number of expected helicopter and total vehicle transportation trips required per structure.
2.2.3 Structure Assembly/ Erection	2-19	3(all)	280. **Comment**. As indicated above, a detailed plan, table and maps will provide this information. It is expected that helicopters will be used for **all** routes, thus the last part of this sentence is in direct variance with TEP's testimony during the ACC Siting Committee hearings and the mitigation measures found in the ACC Order No. 64356 Exhibit 2. Further, **TEP is not authorized to change the ACC Order**, thus the reference (TEP 2003) also is incorrect. This paragraph is not required.
2.2.3	2-19	4(all)	281. **Recommendation**. Delete this entire paragraph.
2.2.3 Shield Wire and Conductor Stringing	2-19	1/2	282. **Comment**. These wire-handling sites have not been shown in any maps. Since helicopters will be using these sites, please show where each associated helicopter landing area will be located. 283. **Question**. (1) Where are these wire-handling sites located along each ROW. (2) Where is the road connection for each site? 284. **Recommendation**. Show wire-handling sites and road access on the appropriate maps.
2.2.3 Shield Wire and Conductor Stringing	2-19	2/(all)	285. **Comment**. The Western Corridor, south of Arivaca Road to about a point north of Castle Rock, is all in the FAA designated, Military Operational Airspace (MOA) designated as FUZZY. Flights are not normally permitted in side this area due to high-speed, low level military combat aircraft flying low level routes. The USAF owns the airspace down to 100 feet above ground. 286. **Question**. (1) Have the helicopter landing sites been approved by the FAA and USAF? (2) Has TEP obtained a Memorandum of Understanding (MOU) or a Memorandum of Agreement that contains the concurrence of the USAF, FAA and TEP's helicopter transportation plans in the FUZZY One MOA? 287. **Recommendations**. The helicopter plans in this EIS may not be possible without such permission of these two US Government agencies. A copy of an agreement between TEP, FAA and USAF be included in the next version of this draft EIS.
2.2.3 Shield Wire and Conductor Stringing	2-20	1/(all)	288. **Comment**. This paragraph does not provide any confidence that arrangements have been made to cross the border with the transmission lines. The second to fourth sentences are extremely vague and without any meaning. Obviously, the FAA will be involved with the helicopter. Mexican organization are not named, locations not specified or shown on maps, continuation into Mexico is missing, etc. The "hills" mentioned in the last sentence confirm that this part of the draft EIS is insufficient for decision makers. 289. **Question**. (1) Who is the Mexican "proponent" of this project? (2) What are all the US and Mexican authorities that will be involved in stringing cable across the border? (3) Why isn't the FAA involved? (4) Has TEP obtained a Memorandum of Understanding (MOU) or a Memorandum of Agreement that contains the concurrence of the USAF,

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Comment No. 277-279 *(continued)*

rationale for using lattice towers is to reduce the impact to the environment by not constructing new access roads and by increasing the distance between towers.

Comment No. 280-281

See the response to Comment 272-274 above. The citation TEP 2003 references documents used in EIS preparation and not ACC Decision No. 64356. ACC Decision No. 64356 has been referenced as ACC 2002 in Chapter 2 and in Chapter 11, References. That Decision is also now in Appendix J.

Comment No. 282-284

Details on wire-handling sites are not provided in the EIS. Once a preferred alternative is agreed upon, the location of these sites would be designated in the design phase of the project.

Comment No. 285-290

As presented in Chapter 10 and Appendix A of the Final EIS, the Federal agencies and TEP had initiated consultation with Davis Monthan Air Force Base regarding potential impacts of the proposed transmission line on military flight operation. In response to the consultation, the Davis Monthan Air Force Base stated no relevant issues with any of the proposed corridors. The proposed Western Corridor could impact the FUZZY Military Operating Area, controlled by the 162nd FG Airspace in Tucson. Subsequently, information regarding the proposed project has been forwarded to the 162nd FG Airspace Manager and a copy of the Draft EIS has been sent for review and comment. No comment has been received.

DOE and TEP has initiated consultation with FAA regarding potential impacts of the proposed transmission line on flight operations. FAA has indicated that the proposed project would not affect air traffic due to location and height of the transmission line structures (see letter in Appendix A).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			FAA and TEP's helicopter transportation plans in the FUZZY One MOA? 290. **Recommendations**. (1) The helicopter plans in this EIS may not be possible without such permission of these two US Government agencies. A copy of an agreement between TEP, FAA and USAF be included in the next version of this draft EIS. (2) Due to the high interest in the actual border crossing, a map showing the "hills" and each tower would greatly facilitate decision making concerning stringing conductors between two countries.
2.2.3 Cleanup and Restoration	2-20	1/7	291. **Comment**. The Pima County Sahuarita Landfill site is becoming full with closure to waste from contractor building asupplies being prohibited from using that facility.
2.2.3	2-20	1/7	292. **Recommendation**. Change comma to period and delete "such as the Pima County Sahuarita Landfill."
2.2.3 Cleanup and Restoration	2-20	1/8	293. **Comment**. This sentence indicates that "state-certified native seed mix" will be used. Both Pima County and Santa Cruz County have ordinances that list approved native species that can and others species that are prohibited to be planted.
2.2.3	2-20	1/8	294. **Recommendation**. After "state-certified" add "and meeting the requirements of native plant ordinances in Santa Cruz and Pima Counties."
2.2.3 Safety Program	2-21	All	295. **Comments**. This paragraph indicates that "all applicable" federal, state and local safety standards would be used. Many times conflicts exist between such standards. The legal liabilities to personnel, equipment, and land need to be resolved prior to starting construction that will cover both construction and continuing operations and maintenance. 296. **Question**. (1) Who will be responsible to resolve conflicts between various safety standards? (2) Is TEP or the "contractor" legally liable if private or public property is damaged or an employee is injured on either kind of property? (3) How will liabilities be determined for accidents that damage public or private lands? (4) Will there be a project Safety Plan? (5) Who will conduct the hazardous analyses assessments for a Safety Program? (6) Will TEP require any other personnel, other than the unknown "transmission line contractor" to have a Safety Program? (7) Will there be a Safety Program required after construction has been completed? (8) Why wasn't electrical safety or the National Electric Code and National Fire Prevention Administration standards not included as minimum safety requirements? (9) Who is responsible for any damage to the El Paso Natural Gasline and its substations caused by construction and/or operations and maintenance actions? (10) Who is responsible for any damage to the TEP transmission line and its substations caused by the El Paso Natural Gasline and its substations? (11) What are the "appropriate" actions that TEP will take if the contactor fails to comply with the approved safety program? (12) Does the Transmission Line Contractor contract indicate it can be terminated for failure to comply with the Safety Program? 297. **Recommendations**. Provide answers to these potentially expensive liabilities and safety concerns prior to releasing the final EIS.
2.2.4 Operations and Maintenance	2-20	1/1 to 2	298. **Comments**. This first sentence implies that landowners may occupy land inside the ROW for extended periods of time, possibly to live or work within the ROW. Since the boundary of the ROW is determined by EMF magnetic field requirements, any prolonged stay could exceed the safe

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Comment No. 291-292

Reference to the Pima County Sahuarita Landfill in Section 2.2.4, ROW Cleanup and Restoration, was stated as an example.

Comment No. 293-294

The commentor's recommendation, "meeting the requirements of native plant ordinances in Santa Cruz and Pima Counties," has been be added to the ROW Cleanup and Restoration section in Section 2.2.4 of the Final EIS.

Comment No. 295-299

In cases where there is a conflict between various safety standards, the strictest/most conservative safety standard would be adhered to. Evaluation of legal liability is outside the scope of the EIS.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			standards for these individuals. The boundary of the ROW needs to be marked with safety Warning signs. The rest of this paragraph does not relate to this first sentence.
2.2.4	2-20	1/2	299. **Recommendations**. (1) That landowners not be permitted to work, have extended stays, or any structures, including non-metallic buildings, such a barns, inside the ROW. (2) Thus, add a new sentence between the first and second sentence of this paragraph to read: "Landowners and other people should stay for extended times or perform long-term work within the ROW boundaries, since its width is determined by exposure limits considered safe for short durations inside the ROW. The boundary of the ROW will be marked by small, standard 'WARNING' signs with an appropriate inscription of the effects of prolonged stays inside the ROW."
2.2.4	2-20	1/2, new ¶	(3) Start a new paragraph with the present second sentence.
2.2.4	2-20	1/2 to 6	300. Comments. This sentence indicates that the Tucson TEP operations center would control the system. The operational connectivity, communications interfaces and training between the US and Mexican systems is not discussed. This is a potential area for causing system failure. The Tucson operations center is not included in this EIS, it's interfaces not described, nor are its capabilities to manage a bi-national system. 301. Questions. (1) Will the Tucson operations control center control the Mexican portion of the system? (2) Who will be authorized close Mexican circuit breakers? (3) Who will be authorized to open American circuit breakers? (4) What means of communications will exist between the 50 or so Mexican power plants, transmission line operators and various control centers in Sonora and Sinaloa? (5) Will the Tucson control center be able to "control" all of the Mexican power plants and transmission lines? (6) Who is has responsibility and authority to prevent "cascading" power failures from crossing the International border? (7) Are there any agreements between TEP and Mexican authorities that will provide for internationalization of this part of the Western Grid? (8) Has the WECC and WestConnect RTO approved the addition of Sonora and Sinaloa into the Western Grid? (9) When will cross-border system operators training start? (10)]Are there any differences in the personnel qualification and technical standards used in Mexico when compared to same US personnel qualification and technical standards? 302. **Recommendations**. As a minimum, these questions have to be answered so that decision makers will have confidence that the proposed system can operate in a safe, reliable, and consistent manner. Such answers needs to be included in the next version of this draft EIS.
2.2.4	2-20	2/1 to 5	303. **Comment**. This first sentence discusses two plans without providing what each plan shall contain. 304. **Recommendation**. Adding a small table that will give the outline of each plan. The same format maybe applicable for providing the same plan to both the USFS and BLM.
2.2.4	2-20	2/8	305. **Comment**. The transmission line damages listed include "flood" damage. This EIS requires that a floodplain analysis be completed. If done correctly, all of the system will be designed for a minimum of a 100-year flood and the South Substation, as a minimum, for a 500-year flood. If flood damage could occur to the proposed system, then it needs to be "designed out" with at least less than 1% occurrence, on a annual basis.
2.2.4	2-20	2/8	306. **Recommendation**. Delete the word "flood" in this sentence.
2.2.4	2-20	2/8 to 10	307. **Comments**. This sentence indicates that repair crews have to get to

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Comment No. 300-302

The level of detail requested by the commentor is not appropriate in an EIS. Chapter 1 provides a discussion of TEP's efforts to link the Mexican and U.S. electric systems.

Comment No. 303-304

The level of detail requested by the commentor is generally not provided in an EIS.

Comment No. 305-306

In Section 2.2.5, a general statement is made about the potential sources that sometimes damage transmission lines. As written, the statement does not imply that transmission lines associated with this project will be damaged by floods, rather, there is the potential for damage. A floodplain analysis is provided in Appendix C.

Comment No. 307-309

The information requested by the commentor is not appropriate for this EIS.

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			damaged parts of the transmission line rapidly. From the first paragraph in this section, such repair crews will be dispatched from Tucson. 308. **Questions**. (1) Has TEP conducted a travel time analysis to determine how long it would take a crew, in monsoon rainstorm to get from Tucson to points on the Western Route? (2) What was the travel time required to reach a point half-way between Arivaca Road and Ruby Road? (3) Does TEP have access to properly equipped helicopters to reduce travel time? (4) What is the difference between travel by helicopter or by vehicle to the hardest part to reach on the Western, Central, and Crossover Routes? 309. **Recommendation**. Provide the results of this analysis and compare such results for the Power Plant Alternative, PNM's Routes, and NO Action (meaning travel time for the present 115 kV line). Such a comparison is important for decision makers to evaluate the "repair time" challenges facing transmission lines versus local generation.
2.2.5 Standard Mitigation	2-21	1/1 to 2	310. **Comment**. TEP testified during the ACC Line Siting Hearings that TEP would NOT construct this system, but an outside contractor would be hired. The TEP "Standard Mitigation Practices" portion of TEP's Environmental Protection Provisions needs to be included in this section (or another) so that all mitigation practices are included in **one place** in the EIS. The word "mitigation is used throughout this draft EIS but it's nearly impossible to determine what Mitigation Measure applies where, when, etc. **The compilation of Mitigation Measures, as recommended below, is critical for decision makers (who will consider changes or adding new Mitigation Measure requirements for TEP). This has to be completed so the EIS can be reviewed.** This needs to be accomplished in the next draft EIS version. 311. **Questions**: (1) Do any other lists of mitigation measures, practices and process that will be implemented on this project exist including those in Appendices D, E, and F? (2) Will all the mitigation measures, practices and processes in the ACC Order implementing the Certification of Environmental Compatibility be included in this section? (3) Will all the mitigation measures, practices and processes in the "Harris Reports" be included in this section? (4) What mitigation counter-measures (proactive actions) that will be performed to avoid having to perform a prescribed Mitigation Measure? (5) How will TEP ensure its "contractor" will follow all the Mitigation Measures? 312. **Recommendations**. (1) **All mitigation practices and procedures need to be consolidated into one location in the EIS so that they are available and understood by decision makers**. (2) Provide **ALL** specific mitigation details in related groups. One arrangement could be by project management phases. (3) Please describe the mitigation measure management process that TEP will used with its contractor and various subcontractors. (4) Each **Mitigation Measure** needs to include answers to the following: (a) Why is the Mitigation Measure necessary? (b) Who will perform the Mitigation? (c) Where and when is the specific Mitigation Measure applicable? (d) When will it be performed, such as before/after another event? (e) What are the specific actions required by the Mitigation Measure? (f) When will the Mitigation be considered complete,

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Comment No. 310-312

Condition Number 16 in ACC Decision No. 64356 requires TEP comply with "recommendations, mitigation measures, and actions to reduce or prevent environmental impact included in the EIS." TEP management will be responsible for providing oversight of contractors and ensuring that mitigation measures are implemented and adhered to. Section 2.2.6 provides a list of other sources (e.g., agreements, permits) that may include mitigation measures.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(g) Who on the TEP Project Team (organization not in this version of the draft EIS) will manage Mitigation Measures and be the point of contact for both public and governmental officials concerning mitigation? (h) Who will verify that the Mitigation process was completed in a satisfactory manner and until no additional follow-up is required? And (i) How will Mitigation Measures be managed, tracked, opened and closed? (j) Who is ultimately responsible if the Mitigation Measure fails? (5) Redo Table 2.2-2 and section 2.2.5 to incorporate the above.
Table 2.2-2 TEP Mitigation Practices Included in the Proposed Action	2-21 to 2-23	Entire table	313. **Comment**. Table 2.2-2 is too general and fails to adequately describe mitigation in terms used by project management and decision makers. More specific and mandatory Mitigation Measures are necessary, as there is no assurance that voluntary measures will be followed. 314. **Recommendations**. (1) Rewrite this table to include, as a minimum, the information requested above under section 2.2.5. (2) Each Mitigation Measure **shall include the verb "shall" to make compliance a mandatory requirement.** (3) **Change the word "would" to read "shall" throughout this Table.**
Table 2.2-2	2-21	3./1 to 4	315. **Comments**. The first sentence of this mitigation measure implies that pole construction areas, staging areas, lay down area, and access" are shown in this version of the draft EIS. None of these have been placed on maps. 316. **Questions**. (1) Where is each of these areas? (2) Where are the wildlife zones, archaeological sites, or ROW boundaries? (3) Why isn't there a reference to the best maps provided to show these important parts of this proposed work plan? (4) How will the land managers know the definition the "colored flags" and "survey markers" 317. **Recommendation**. Include the reference to the maps in the EIS to show each of these areas. These visual presentations are important for decision makers.
Table 2.2-2	2-21	6.(all)	318. **Comments**. The term "range improvements" needs clarification. 319. **Question**. Do range improvements include fences and gates?
Table 2.2-2	2-21	6./1	320. **Recommendation**. After "water facilities" add ", fences, gates,"
Table 2.2-2	2-21	7.(all)	321. **Comment**. During the ACC Siting Committee hearings, TEP indicated that NO highly visible devices would be used on any of these towers. The consultations need to be completed and Memoranda of Understanding included in the EIS from the Federal Aviation Administration and the US Air Force giving permission for this system to be constructed. **This has to be accomplished prior to release of the Final EIS so decision makers can consider this in determining each Record of Decision (ROD).** 322. **Questions**: (1) Have the visibility requirements for Ruby Field (McGee's Siting) been met? (2) What are the requirements for "highly visible devices" (HVDs) including colored balls or lights? (3) How will these lights be powered? (4) What are the maintenance requirements for these devices? (5) Have these HVDs been considered in the visibility studies. If not, then the visibility studies in this EIS need to be redone, taking the HVDs into account? 323. **Recommendations**. Clarify that NO "Highly Visible Devices" are required for any parts of this system. If so, then all visibility analyses will have be redone. This has to be provided in "draft" form for comments and review, prior to starting the Final EIS.
Table 2.2-2	2-23	16/1	324. **Comment**. This mitigation measure is dependent upon a future action

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Comment No. 313-314

The mitigation measures in Table 2.2-2 are proposed measures under the Proposed Action. The Federal agencies will describe specific mitigation commitments in their RODs. The RODs will explain how mitigation measures will be planned and implemented, will be as complete as possible based on available information, and will be subject to revision as more specific and detailed information becomes available. The RODs will be available for public review and copies will be available upon request.

Comment No. 315-317

Due to changes likely to be made during the NEPA process, final designation for the pole construction, staging, laydown and access areas will occur during the design phase of the project. These areas are described in Section 2.2.4.

Comment No. 318-320

Repairs would depend on agreements with the parties involved.

Comment No. 321-323

CEQ and DOE NEPA-implementing regulations require compliance with all applicable regulations.

Comment No. 324-326

Refer to Section 4.3 regarding consultation with USFWS.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			by the USFWS, "consultation under Section 7 of the *Endangered Species Act*.." 325. **Question**. Why aren't the Section 7 ESA consultations with USFWS been completed? 326. **Recommendations**. (1) Complete consultations under Section 7 prior to resubmitting this EIS. (2) Delete, "If required," and capitalize "Mitigation...
Table 2.2-2	2-23	21.	327. **Comment** This "mitigation" measure is really a safety issue. The safety issue then should lead to a way to improve safety. 328. **Recommendation**. That ALL safety issues be in one section with safety steps grouped together.
Table 2.2-2 Table 2.2-2	2-23 2-23	22.(all) 22. (all)	329. **Comment**. Due to the unique construction equipment that will come from other parts of the country for this project, there is a reasonable probability they could have seeds of noxious, non-native, varieties embedded. The only way to ensure such material is not brought into the area is steam cleaning, using the same standards as required by the U.S. Department of Agriculture (which recently was transferred to the Department of Homeland Security) when importing vehicles into the United States. Thus, similar procedures should be followed for all vehicles coming into the construction zone. 330. **Recommendations**. (1) That all work vehicles, such as listed in Table 2.2-1 (page 2-15) and those discussed in section 2.2.1 use the approved-USDA "steam cleaning" standards PRIOR to entering into any part of the construction zone. Such cleaning would not have to be repeated when vehicles moved from one part to another part of the construction zone. Each "clean" vehicle will have a tag giving particulars so that the professional biologist can certify compliance. (2) Change this measure to read as "22. All construction equipment shall be steam cleaned prior to entering the construction zone using the USDA-approved process. All work vehicles shall be tagged and certified as clean and the on-site biologist will track compliance who can have unclean vehicles removed from the project. Clean vehicles will be able to shift work locations without having to be re-cleaned."
2.3 Comparison of Alternatives	2-23	2/bullets	331. **Comment**. The ***Federal Register* Notice of Intention.., provided eight specific areas to be assessed. None of these were followed as mandated**. For example, "biological resources" description, as amplified on page 2-25, only discussed plants, not wildlife, fails to indicate that consultations have even started. 332. **Question**. Why were these not assessed as indicated in the NOI? 333. **Recommendations**. To agree with these requirements, then (1) Third bullet, change to read "visual impacts" (2) Fourth bullet, change to read "Impacts on protected, threatened, endangered, or sensitive species of animals or plants, or their critical habitats." (3) Fifth bullet, change "cultural resources" to read "Impacts on cultural and historic resources." (4) Sixth bullet, change to read "Socioeconomic impacts of development of the land tracts and their subsequent uses." (5) Eight bullet, just after "water resources" add "Impacts on floodplains and wetlands" (6) Fourteenth bullet, change to read "Disproportionately high and adverse impacts on minority and low income populations"
2.3.1	2-29	NEW	334. **Comment** Renewable energy sources will increasingly produce electricity and energy during the life cycle of the proposed TEP system. A new paragraph needs to be included to discuss the effects that renewable energy sources will have in the target areas, between Sahuarita and Santa

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Comment No. 327-328

In Table 2.2-2, mitigation measure 21 does address fire safety as stated by the commentor. Table 2.2-2 provides a list of all proposed mitigation measures that are likely to be implemented under the Proposed Action. A more detailed discussion on fire safety and mitigation can be found in Section 4.10, Human Health and Environment. Firefighters and TEP personnel would comply with the mitigation and safety measures in Forest Service Fireline Handbook (NWCG Handbook 3, PMS 410-1, NFES 0065) and the Forest Service Health and Safety Code Handbook (FSH 6709.1).

Comment No. 329-330

Sections 3.3.6 and 4.3.6 discuss the existing invasive species (non-native plants) in the project area, and potential invasive species impacts that could result from the proposed project, and Table 2.2-2 describes the mitigation measures to be employed in accordance with applicable requirements.

Comment No. 331-333

The Identification of Environmental Issues section of the *Notice of Intent To Prepare an Environmental Impact Statement and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Improvement; Tucson Electric Power Company* provided a preliminary list of issues that would be analyzed in the Draft EIS. Section 2.3 presents a list of the resource areas evaluated. The issues identified in the NOI are discussed in the appropriate resource area.

Comment No. 334-335

Alternative power supply means does not meet TEP's proposal and are thus not evaluated in this EIS (refer to Section 2.1.5 of the EIS).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			Ana, Sonora. 335. **Recommendation**. New paragraph 2.3.1. "Impact of Alternative Sources of Energy on the Five Alternatives." Suggest comparing and contrasting the impacts of 1.1%, 2.5%, 5%, and 10% use of local generation, through renewable energy resources, due to more realistic changes to the present 1.1% renewable energy source requirements imposed in Arizona.
2.3.2	2-29	NEW	336. **Comments**. Energy efficiency and conservation programs have proved to reduce significant energy loads. Such programs are slowly being introduced in Arizona and acceleration is expected as the price of electricity continues to increase. Such programs, conservatively, can save 30% or more energy demand. They will impact the future requirements for this system, in the target area, between the Town of Sahuarita and Santa Ana, Sonora. 337. **Recommendation**. New paragraph 2.3.2. "Impact of Promoting Energy Conservation and Efficiency on the Five Alternatives" Suggest make 10%, 20% and 30% reductions in Energy due to both conservation and efficiencies means being implemented in Santa Cruz County, which recently adopted the International Building Code, including the Energy Code sections. Santa Cruz County is preparing a "green" or high efficiency building ordinance, using the U.S. Green Building Council recommendations, requiring Energy Star rated appliances, and National Association of Home Builders (NAHB) recommendations, which, conservatively, can reduce future energy demands for structures by 30%.
Table 2.3-1	2-30 to 2-41	New Column	338. **Comment** Since the Local Power Plant Alternative is required to be assessed and compared in this EIS. 339. **Recommendation**. That a new Column is needed to be added, with data, between the "Crossover Corridor" and "No Action Alternative" labeled "**Local Power Plant Alternative**" and that all the relevant information be included in this table for that alternative.
Table 2.3-2	2-41	New	340. **Comment** Since there are two alternatives for the 115 kV line that will interconnect with the TEP 345 kV transmission line, the summary of this analysis needs to be included in this EIS. 341. **Recommendation**. Add new Table 2.3-2, titled "Summary Comparison of Potential Environmental Effects of Alternatives for the 115 kV transmission line in Nogales, Arizona.
3.1.1	3-1	3(all)	342. **Comment** The sentence states that TEP has not finalized the placement of the 125-ft" right-of-way (ROW). The second sentence states that "precise siting of the ROW would involve input form cultural, biological, and visual specialists." That process is what the EIS is all about. Obtaining such consultations, such inputs, negotiations, compromises of ALL of these factors so that all parties are comfortable and in agreement with the precise nature of the final design. Obviously, **TEP has failed to accomplish this task so far in the EIS process.** Without such agreements and "statements" in this report, the work is incomplete. The next statement confirms that all parties will never agree "after each agency has issues a Record of Decision (ROD), to identify and minimize impacts of each area of land to be disturbed" continues to show that TEP fails to understand this process. By "waiting" for individual agencies to respond prevents an integrated solution to the complex, interrelated issues throughout this EIS. **Without the precise locations of ROWs, poles/towers, and all other facilities, this draft EIS is NOT ready for presentation to ANY agency for decision making. The time is now, in this DRAFT EIS to present all of those factors, and it's more than 'area of disturbed land" that is involved with this decision. TEP MUST provide, discuss, compromise, modify, and reach agreement with all government agencies, landowners, customers, residents, and all others impacted by this project with the DRAFT EIS**

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Comment No. 336-337

The ACC is vested with the state's authority to decide how it believes energy should be furnished within Arizona's borders (for example, the need for and effectiveness of transmission lines within its borders). Refer to ACC, Comment 1, and to the revised text in Section 1.1.2, The Origin of TEP's Proposal: TEP's Business Plan and the Proceedings of the Arizona Corporation Committee, that provides explanation of the jurisdictions and authorities of the state and Federal agencies, and their relationship to this NEPA analysis.

Comment No 338-339

ACC Comment 3 emphasized that a new power plant in Nogales is not a viable alternative to a new, second transmission line (part of TEP's proposal). Therefore, the alternative of a new power plant is not evaluated in detail in this EIS (refer also to Section 2.1.5, Alternatives Considered But Eliminated From Further Analysis).

Comment No. 340-341

One of the alternatives route for the proposed 115-kV transmission line was eliminated from further analysis due to land use of the area. Discussion on the 115-kV line has been added to Chapter 2 of the Final EIS.

Comment No. 342-344

The NEPA process does not end with the preparation of the Draft EIS. Rather, it is an ongoing process with formal and informal consultations until the project is completed. Presentation of tower, ROWs, and facility locations in the Draft EIS are preliminary and subject to change with the findings of the biological and cultural investigations. If an action alternative is selected, the Federal agencies will follow a Programmatic Agreement with the Arizona State Historic Preservation Office (SHPO), interested tribes, and TEP guiding the treatment of cultural resources. Prior to ground-disturbing activities in any approved corridor, a complete on-the-ground inventory would be conducted by professional archaeologists in accordance with provisions of Section 106 of the National Historic Preservation Act (NHPA). Efforts to identify cultural resources would also

Comment No. 342-344 (continued)

include historical document research and continued consultation with Native American tribes regarding potential traditional cultural properties and sacred sites. Identified cultural resources would be evaluated in terms of National Register eligibility criteria and potential project effects in consultation with all parties who are participants in the Programmatic Agreement.

Wherever possible, power poles, access roads, and any other ground-disturbing activities would be placed to avoid direct impacts to cultural resources. A professional archaeologist would assist the pole-siting crew in avoiding impacts to cultural resource sites. In cases where avoidance of sites is not feasible, a site-specific Treatment Plan and Data Recovery Plan would be developed in consultation with tribes, the, appropriate land-managing agencies, and the Arizona SHPO. These plans will include an appropriate Plan of Action to implement the Native American Graves Protection and Repatriation Act. A Discovery Plan would be developed to establish procedures to be followed in the event of discovery of unanticipated cultural resources, and a Monitoring Plan would address issues of site protection and avoidance.

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			showing those results. Anything less than that requires REJECTION. 343. **Question**. Why hasn't TEP presented the precise location of each ROW and structure in the Draft EIS, even after governmental approval agencies have specifically requested this information be provided? 344. **Recommendation**. Resubmit this EIS after all of the precise locations have been determine and preliminary agreements achieved among all parties to this project, including those in Mexico.
3.10 Human and Health Environment	3-86	3/1 to 5	345. **Comment**. This paragraph indicates "deleterious" heath conditions are the concerns of the public from EMF. The conclusions are wrong, there is a connection stated below, that EMF is a "possible" human carcinogen. 346. **Recommendation**. (1) Change the first three sentences to read: The long-term exposure to EMF exposure, in particular magnetic fields, has increased awareness by the public due to several studies that indicate a possible impact on the heath of such individuals. As the population increases, high voltage creates a stable electric field while the alternating components create the magnetic fields from transmission lines. Both electric fields (measured in kilo Volts per meter) and magnetic fields (measured in micro Tesla (μT) or milli Gauss (mG)) are of concern. As part of the EMF-RAPID Program's assessment of EMF-related health effects, an international panel of 30 scientists met in June 1998 to review and evaluate the weight of the ELF-EMF scientific evidence. Using criteria developed by the International Agency for Research on Cancer, none of the Working Group considered the evidence strong enough to label EMF exposure as a "known human carcinogen" or "probable human carcinogen." However, a majority of the members of this Working Group (19/28 voting members) concluded that exposure to power-line frequency EMF is a "possible" human carcinogen. This decision was based largely on "limited evidence of an increased risk for childhood leukemias with residential exposure and an increased occurrence of CLL (chronic lymphocytic leukemia) associated with occupational exposure." For other cancers and for non-cancer health endpoints, the Working Group categorized the experimental data as providing much weaker evidence or no support for effects from exposure to EMF. (NIEHS 1999) The NIEHS agrees that the associations reported for childhood leukemia and adult chronic lymphocytic leukemia cannot be dismissed easily as random or negative findings. The lack of positive findings in animals or in mechanistic studies weakens the belief that this association is actually due to EMF, but cannot completely discount the finding. The NIEHS also agrees with the conclusion that no other cancers or non-cancer health outcomes provide sufficient evidence of a risk to warrant concern. (2) In the third sentence, delete all before "Appendix B..."
3.10	3-86	4/1 to 2	347. **Comment**. This first two sentences of the paragraph are not related. 348. **Recommendation**. (1) Spilt this into two paragraphs, between the first and second sentence. (2) Suggest moving the first sentence to be a new fifth paragraph.
3.10.1 Electric and Magnetic Fields	3-86	1/5	349. **Comment**. Frequency is measures in cycles per unit time. 350. **Recommendation**. Change from "frequency" to read "of alternating current (AC) of 60 Hz, or 60 cycles per second."
3.10.1	3-86 to 3-87	2 (all 1 (all)	351. **Comments**. These two paragraphs are a mixture of unrelated information, much in error. The first two sentences in the last paragraph on 3-86 do NOT show that "common household appliances" are **not** the "primary EMF levels" in the project vicinity. The appliance data are for a three-foot distance while transmission line EMF levels are measured at the edge of the Right-of-Way, from the structures and conductors.

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Comment No. 345-346

As stated in the Draft EIS "the possibility of deleterious health effects…has increased public concern." The suggestion made by the commentor is similar to and conveys the same idea as presented in the Draft EIS.

Comment No. 347-348

Section 3.10, Human Health and Environment, includes a discussion on electric and magnetic fields. While corona effects mainly cause interference, audible noise, and produce visible light, because these effects are due to the electric field effects, they are discussed in Section 3.10.

Comment No. 349-350

The text is correct as written.

Comment No. 351-352

Section 3.10.1 of the EIS mentioned by the commentor provides a comparison of the EMF level of some common household appliances at 3 ft and EMF level from existing transmission lines at the edge of the ROW. The EMF from the common household appliances and the existing transmission lines were modeled at a reasonable distance that the public would be exposed to the EMF.

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352. **Recommendations**. The NIEHS 1999 report, pages 31 to 34, provide a better and more complete discussion of the effected "magnetic" environment, thus recommend using the following (modified and tailored for this system):

EMF Envionment. An evaluation of the importance of any environmental agent requires knowledge of both the potential health impacts associated with exposure and the exposure levels encountered by the population. For any environmental exposure, a clear estimate of risk is made more difficult by the lack of a well-defined measure of dose. For EMF, it is unknown whether time-averaged fields, time above a threshold, the electric current induced by the field, the magnetic field itself, or specific temporal characteristics of the field (e.g. frequency, waveform, or intermittency) are relevant to human health.

Magnetic Field Environment. Recognizing this uncertainty and faced with practical limitations, investigators have employed several different methods to estimate human exposure to EMF. Most of these approaches provide an estimate of the 24-hour time-average of the 60 Hz magnetic field. The first EMF epidemiological study, as well as several subsequent studies, estimated exposure by developing a code to describe power-line wiring near homes. More recent studies performed actual measurements of magnetic fields using either survey instruments in homes or miniature monitors worn by an individual for periods of up to 24 hours or more (personal exposure measurements). Another approach was to calculate time-average magnetic field exposures based on electric current in nearby power lines and distance of homes to the lines. This report focuses entirely on recent studies that measured magnetic fields, and highlights single spot measurements and 24-hour, time-weighted averages.

Several studies measured magnetic fields in either homes or personal exposure. These studies and others compared different types of measurements in an attempt to relate the results across various epidemiological studies. Two of the studies attempted to evaluate nationwide exposures in the U.S. population. One study measured magnetic fields in various locations within homes using fixed meters. This survey, although not designed to describe individual exposures, provides a snapshot of residential fields, and the results are probably reasonably representative of residential conditions. An extensive measurement protocol was used including spot measurements inside rooms, field recordings in the home, measurements of field profiles from wiring outside the home, measurements of household appliances and measurement of fields from currents in the electrical grounding system. The other study relied entirely upon personal monitors mailed to participants along with a questionnaire that addressed characteristics of the individual wearing the monitor. These two studies form the basis for most of the discussion that follows.

Measured magnetic field exposures to individuals and measurements in homes tend to have an asymmetric distribution with the bulk of their values in the low range with fewer values in the range of higher exposures. Therefore, the central tendency of the values is better represented as a geometric mean (log-weighted average) and the variation around that mean given as a geometric standard deviation. Another measure commonly used is the median, which denotes the estimate of exposure for which 50% of the population have smaller exposures and 50% have larger

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exposures. In addition, estimates are also presented for the portion of the population in the upper range of exposure. This report presents averages as geometric means with geometric standard deviations given in parenthesis beside the average estimate.

Average 24-hour personal magnetic field exposure for individuals in the U.S. population is about 0.09 micro Tesla (μT) (0.9 milligauss or mG). (geometric standard deviation of approximately 2.2). The median measured fields using monitors located for 24 hours in several places in the homes shown in Table 3.10-1. The main difference between the home and personal exposure measurements pertains to exposures incurred outside of the home and the movement of individuals within the home near EMF sources.

Table 3.10-1. ***Average Magnetic Field Measured in Homes.***

Measurement	In Micor Tesla	In Milli Gauss	Geometric Std Dev.
Average 24-hr personnel magnetic field exposure in U.S.	0.09 μT	0.9 mG	2.2
About 44% have 24-hr exposure	> 0.1 μT	> 1.0 mG	NA
About 14 % have 24-hr exposure	> 0.2 μT	> 2.0 mG	NA
About 0.5 % have 24-hr exposure	> 0.75 μT	> 7.5 mG	NA
Mean measured fields using monitors located for 24-hrs in several places in the home	0.06 μT	0.6 mG	NA
About 28% of homes exceeded	> 0.1 μT	> 1.0 mG	NA
About 11% of homes exceeded	> 0.2 μT	> 2.0 mG	NA
About 2% of homes exceeded	> 0.5 μT	> 5.0 mG	NA

Personal exposures measured within the home averaged 0.08 μT (0.8 mG) (geometric mean standard deviation of about 2.5) for time not in bed and 0.05 μT (0.5 mG) (3 geometric SD about 5.2) for time spent in bed. In comparison, personal exposures at work, exposure at school and exposure during travel measured are in Table 3.10-2 below. It is clear from these numbers that personal exposures tend to be somewhat larger than those observed by fixed measurement of fields in homes.

Table 3.10-2. ***Personnel Exposures to Magnetic Fields at Home, School and Work Environments.***

Measurement	In Micor Tesla	In Milli Gauss	Geometric Std Dev.
Average personal exposures at work	0.1 μT	1.0 mG	2.57
Average exposure at school	0.06 μT	0.6 mG	2.1
Average exposure druring travel	0.1 μT	1.0 mG	2.0
About 38% of personnel at home and not in bed or 30% of personnel in bed	> 0.1 μT	> 1.0 mG	NA
About 14 % of personnel at home and not in bed or in bed	> 0.2 μT	> 2.0 mG	NA
About 3.5 % of personnel at home and not in bed or 4.0% of personnel in bed	> 0.5 μT	> 5.0 mG	NA
Average within home not in bed	0.08 μT	0.8 mG	2.5
Average within home in bed	0.05 μT	0.5 mG	2.5

Personal exposures do not appear to differ by gender, but do differ by age as shown in Table 3.10-3. There are some regional differences in exposure across the United States, but these are differences that are likely to change based upon

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the seasons and are not likely to have a major impact upon exposure considerations. Residents of apartments and duplexes seem to have higher average exposures compared to residents of other dwelling types.

Table 3.10-3. *Personnel Exposures by Age to Magnetic Fields.*

Measurement	In Micor Tesla	In Milli Gauss	Geometric Std Dev.
Young childres less than 5 years of age	0.08 µT	0.8 mG	2.1
School-aged children, five to 17 years of age	0.08 µT	0.8 mG	2.2
Working-aged adults, 18 to 64 years of age	0.1 µT	1.0 mG	2.2
Average exposures for Residents of apartments and duplexes	0.1 µT	1.0 mG	NA
Average exposures for Residents of other dwelling tupes	0.05 µT to 0.07 µT	0.5 to 0.7 mG	NA

The presence of overhead power lines near homes contributes to both personal exposures and fixed home measurements. In a large study using fixed monitors in homes, estimates of fields due to power-line fields were determined independent of exposures measured in the homes. Both the power-line and grounding system fields were combined and compared to the short-term field levels measured in the centers of rooms. Combined, the two sources add up to much of the spot residential fields in homes having higher than usual magnetic field levels.

A comparison shown in Table 3.10-4, was made between different types of power lines to determine which ones produced the greatest fields. Transmission lines and certain types of distribution lines produced the greatest fields, although the number of residences exposed to these fields was small), and several types of primary distribution lines produced the lowest median fields. The majority of homes were associated with underground distribution lines that still generated fields with 5% exceeding roughly 75% of the median for all homes).

Table 3.10-4. *Personnel Magnetic Field Exposures by Type of Power Line*

Measurement	In Micor Tesla	In Milli Gauss
Homes associated with Transmission Lines and certain types of distribution lines	0.09 µT to 0.38 µT	0.9 mG to 3.8 mG
Homes associated with severl types of pirmary distribution lines	0.01 µT to 0.02 µT	0.1 mG to 0.2 mG
Average home associated with underground distribution lines	0.03 µT	0.3 mG
About 5 % of homes associated with underground distribution lines exceeded (about 75% of the median for all homes)	> 0.13 µT	> 1.3 mG

The effect of power lines on personal exposures was also assessed, but in contrast to the previous discussion, self-reporting was used to classify the types of power lines. Persons reporting three-phase primary distribution lines (average exposure at home), multiple three-phase primary distribution lines and transmission lines had the highest average exposures, while those reporting single phase and two-phase primary distribution lines had the lowest exposure as shown in Table 3.10-5. For all types of lines, some of the population had higher exposures. At distances of greater than 50 feet, the type of power lines appeared to have little impact on the average exposure and only a minor impact on the number of individuals with the highest exposures.

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Table 3.10-5. *Effect of Power Lines on Average Magnetic Field Exposures at Home*

Measurement	In Micor	In Milli
Three-phase primary distribution lines	0.083 µT	0.83 mG
Multiple three-phase primary distribution lines	0.1 µT	1.0 mG
Transmission line	0.1 µT	1.0 mG
Single-phase distribution line	0.07 µT	0.7 mG
Two-phase primary distribution line	0.05 µT	0.5 mG
For all types of lines, 25% of the population had	> 0.1 µT	>1.0 to 2.0
For all types of lines, 5% of the population had	> 0.3 µT	>3.0 to 5.0

Several other factors contributed to increased personal exposure and/or increased residential exposure. These included type of home (single family homes had smaller average exposures than multi-family homes), size of the home (smaller homes had higher fields), age of the home (older homes had higher fields), water-line type inside the home (homes with metal pipes tended to have higher fields) and location of the home (urban and suburban homes had higher fields than rural homes).

Magnetic fields generated by appliances were also studied. Exposures tend to vary greatly by distance to the appliance and type of appliance. In general, microwave ovens, toaster ovens, ceiling heat and refrigerators generated the highest fields. However, the contributions of these fields to personal exposure will depend upon placement of the appliance, distance from the appliance, frequency of use, manufacturer, etc. Any observations on exposures from appliances are not easily generalized.

Occupational exposures have been evaluated in a large number of studies. The list of occupations with EMF exposure is quite large. In general, electrical workers, persons working near machines with electric motors and welders tend to have the highest exposures with time-weighted average magnetic field exposure levels in the range of 0.1 to 4.0 µT (1 to 4 mG).

Electrical Field Enviroment. The electric-field profile, see Table 4.10-1, Table 4.10-2, and Figure 4.10.1, is measured from the centerline of the structure. The figures clearly illustrate the electric , the location of the maximum, and the Right-of-Way (ROW) considerations. Effects on humans due to spark discharges from objects insullated from ground may cause injury. A male can perceive a spark discharge in approxitely a 0.12 magaJoule (mJ), while a 2 mJ spark is annoying. It takes a 25 mJ spark to injury, which is a value beyond that expected on objects beneath a transmission line. Using worst case analysis, with a combination of no leakage path to ground exists, the object has steady motion and it is oriented parallel to the transmission line, Table 3.10-6 shows the kV/m.

Table 3.10-6. *Effect of Electric Fields from a Transmission Lines that will induce current on various vehicles. (in kV/m)*

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			25 J 259.00 159.00 106.50 Annoyance 2 mA 8.92 4.35 2.50 2 mJ 2.37 1.21 0.95 Perception 1.1 mA 4.91 2.39 1.39 0.12 jJ 0.58 0.35 0.23 **Actual Magnetic and Electric Enviroments for a Segement this Project.** Tucson Electric Power Company (TEP) has developed model data of existing levels of EMF levels on the Bureau of Land Management (BLM) part of the Common Corridor, shown in Figure 1.1-4. At present, two existing transmission lines are in the same corridor, to the north of the proposed project. Table 3.10-7 shows both the Magnetic and Electric Field data a distances of 285 feet (85 m) and 340 feet (104 m) from the closest existing transmission line. This coincides with the right-of-way (ROW) of the proposed transmission system. These magnetic and electric fields will be additive to that in the proposed transmission line system. **Table 3.10-7. *Effect of Magnetic and Electric Fields from Existing Power Lines that will be added to the Proposed Transmission System*** Distance from Existing Transmission Lines to Proposed System / Magnetic Field / Electric Field At 280 feet (85 meters) 0.11 µT (1.1 mG) 0.01 kV/m At 340 feet (104 meters) 0.076 µT (0.76 mG) 0.006 kV/m
Table 3.10.1 EMF Field Level of Some Common House Hold Appliances	3-87	Table (entire)	353. **Comment**. The reference for this table leads to its reference that is a report dated September 1985. There have been many improvements in internal grounding, RF shielding and understanding radiations from such appliances in the past 18 or so years. Recommend using the following Table from a study. The reworded paragraph above discussed home appliances and their variability. The connection with home appliances and transmission lines is very misleading, not true, nor expected to be used as an argument since appliances are temporal, not 24/7, and are improving with respect to EMF. 354. **Question**. Does DOE have better data if it' is essential to discuss EMF from modern appliances2 355. **Recommendations** This table is very misleading. Delete
3.10.1	3-87	2	356. **Comment**. This paragraph suggests that no standards are used for EMF. There is the National Electric Code which recommended the limit for the electric field under a transmission line no to exceed 5 milli-amps (rms). Further, Appendix B, page B-1, fifth paragraph, uses the value of 3 mG (0.3 micro Teslas) as when magnetic fields appear to be associated with childhood leukemia. The use of 3 mG is commonly used to define the boundary of the required ROW. These appear to be reasonable electric and magnetic field values to use for this project. Further the discussion with respect to other state laws is very incomplete. 357. **Recommendations**. (1) Insert a new Table 3.10.1- 8 to read as follows: **Table 3.10-8 *State Transmission Line EMF Standards and Guidelines.*** Electric Field / Magnetic Field State / On R.O.W / Edge of R.O.W / Edge of R.O.W Florida 8 kV/m (1) 10 kV/m 2 kV/m 15.0 µT (150 mG) – Maximum Load (1) 20.0 µT (200 mG) – Maximum Load (2) 25.0 µT (250 mG) – Maximum Load (3) Minnesota 8 kV/m --- --- Montana 7 kV/m (4) 1 kV/m ---

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Comment No. 353-355

The reference for the data for Table 3.10-1, EMF Level of Some Common Household Appliances, in the EIS was from a study done in 2003, and not September 1985 as stated by the commentor.

The comparison with the household appliance EMF was used for exposure to EMF from the transmission line because exposure to EMF from the transmission line would not be continuous, as there are no houses located in the vicinity of the proposed corridors that would be exposed to continuous EMF from the transmission line. Therefore, like exposures the household appliance EMF, exposure to EMF from the transmission line would be short-term.

Comment No. 356-362

The referenced paragraph states that no Federal regulations have been established specifying environmental limits on the strengths of fields from powerlines. The level of detail of information currently provided in the EIS is adequate to assess environmental impacts.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation

New York	11.8 kV/m 11 kV/m (5) 7 kV/m (6)	1.6 kV/m	20.0 µT (200 mG) – Maximum Load
Oregon	9 kV/m	---	---

Notes R.O.W. = right-of-way
(1) For lines 69 to 230 kV
(2) For 500 kV lines.
(3) For 500 kV lines on certain existing R.O.W.
(4) Maximum for highway crossing
(5) Maximum for private road crossings.

(2) Insert a new Table 3.10-9 to read as follows:

Table 3.10-9 *International Commission on Non-Ionizing Radiation Protection (IRPA/INIRC) Guidelines.*

	Electric Field	Magnetic Field
Occupational:		
Whole Working day	10 kV/m	500 µT (5 G)
Short term (1)	30 kV/m	5000 µT (50 G)
For limbs		25,000 µT (250 G)
General Public:		
Up to 24 hours per day	5 kV/m	100 µT (1 G)
Few hours per day	10 kV/m	1,000 µT (10 G)

Notes
For electric fields of 10-30 kV/m, field strength (kV/m) x hours of exposure should not exceed 80 for the whoe working day. Whole-body exposure to magnetic fields up to 2 hours per day should not exceed 5000 µT (50 G).
Source: IPRA/INIRC, 1990

(3) Insert a new Table 3.10-10 to read as follows:

Table 3.10-10 *ACGIH Occupational Threshold Limit Values for 60-Hz EMF.*

	Electric Field	Magnetic Field
Occupational Exposures should NOT exceed:	25 kV/m	1,000 µT (10 G)
	Prudence dictates the use of protective devices (e.g., suits, gloves, insulation) in fields above 15 kV/m	For workders with cardiac pacemakter the magnetic field shoud not exceed: 10 µT (1 G)
	For workers with cardiac pacemakers maintain exposure at or below 1 kV/m	

Source: American Conference of Governmental Industrial Hygienists (ACGIH), 1994.

(4) Change the words in the paragraph to read as follows:

'In the United States, there are no federal health standards specifically for 60-Hz EMFs.

At least six states have set standards for transmission line electric fields and two of those states have standards for magnetic fields, as shown in Table 3.10-8. The two state magnetic field standards (NY, NJ) are basically the maximum fields that existing lines in those states produce under maximum load-carrying conditions. In other words, their purpose is to ensure that future power lines do not exceed current EMF levels.

Two organizations have developed guidelines for 60-Hz EMP exposure, as shown in the Tables 3.10-9 and 3.10-10. Note that both these sets of guidelines are based on established effects of EMFs, such as nerve stimulation, and are much higher than EMF levels found typically in

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			occupational and residential environments. Tables 3.10-9 and 3.10-10 are not meant to correspond t the low-level field strengths associated with elevated cancer incident reported in recent epidemiological studies and should not be interpreted as distinguishing "safe" from "unsafe" EMF levels. The National Institute of Environmental Health Services and Department of Energy (NIEHS/DOE) do not know at this point whether EMF exposure from power frequency sources constitutes a health hazard. Therefore the NIEHA/DOE cannot determine levels of exposure which are "safe" and "unsafe." (NIEHS/DOE 1995)
3.10.1 Safety	3-87 3-87 3-88	2/4 2/4 after 3rd bulleted paragraph	358. **Comment**. There are no quantitative values that represent the impact of the four types of shock or currents. 359. **Recommendations**. (1) Insert a new sentence, in the second paragraph to read. "See Table 3.10-11 below. (2) Insert new paragraph and Table 3.10-11 on page 3-88, after last bulleted paragraph as follows: The effects of EMF on humas is generally due to discharges from objects insulated from the ground, such a vehicles, building, and rancher cattle fences which become electrically charged by induction for the transmission line. Table 3.10-11 summarizes the electrical effects on humans, ranging from no perception through severe shock and possible entricular fibrillation.

Table 3.10-11 *Threshold Levels for 60 Hz Contact Current.*

Perception	
0.09	Touch perception for 1% of women
0.13	Touch perception for 1% of men
0.24	Touch perception for 50% of women
0.33	Grip perception for 1% of women
0.36	Touch perception for 50% of men
0.49	Grip perception for 1% of men
0.73	Grip perception for 50% of women
1.10	Grip perception for 50% of men
Startle	
2.2	Estimated borderline hazardous reaction, 50% of women (arm contact)
3.2	Estimated borderline hazardous reaction, 50%of men (pinched contacts)
Let Go	
4.5	Estimated Let-go for 0.5% of women
6.0	Let-go for 0.5% of women
9.0	Let go for 0.5% of men
10.5	Let-go for 50% of women
16.0	Let-go for 50%of men
Respiratory Tentanus	
15	Breathing difficult for 50% of women
23	Breathing difficult for 50% of men
Fibrillation	
35	Estimated 3-s fibrillating current for 0.5 % of 20 kg (44-lb) children
100	Estimated 3-s fibrillating current for 0.5 % of 70 kg (150-lb) adults
Established Standards	
0.50	ANSI standard for maximum leakage, portable equipment
0.75	ANSI standard for maximum leakage, installed appliance
5.0	NESC recommended limit for induced current under transmission line

3.10.2 Corona Effects	3-89	3 (all) Radio and Television Interference	360. **Comments**. This interference from both the 345 kV (2000 MW) and 115 kV (100 MW) transmission lines needs to be quantified. 361. **Questions**. (1) What are the distances from each will various levels of RF and TV interference be noted, in terms of decibels over background noise. (2) In the "common corridor" northern parts of the 345 kV line, what are the

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Comment No. 356-362 *(continued)*

The referenced paragraph states that no Federal regulations have been established specifying environmental limits on the strengths of fields from power lines. The level of detail of information currently provided in the EIS is adequate to assess environmental impacts.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			combined impacts of this line and the other three transmission lines in the same utility easement? 362. **Recommendations**: (1) Show the curve, which reflects RF/TV interference, levels versus distance from the 115 kV and 345 kV, at full operational loads, for wet and dry climates. (2) Show where the RF/TV noise level exceeds background noise, in 10 dB increments. (3) Include the impacts of all four utility lines, and any planned future utility lines. (4) Discuss the impacts of age of insulator and conductors on RF/TV interference.
3.13 Environmental Justice	3-96 to 3-102	All	363. **Comment**. The Environmental Protection Agency (EAP) has established the Environmental Justice Geographic Assessment Tool replaces the *EnviroJustice Mapper* with new features and new technology. It is the result of an Agency-wide work group and provides information relevant to any area in the Continental U.S. Factors relevant to environmental justice assessments generally fall into four sets of indicators, i.e., **environmental**, **health**, **social**, and **economic**. The conditions these indicators seek to illuminate include, but are not limited to: adverse health or environmental impacts, aggregate or cumulative impacts, unique exposure pathways, vulnerable or susceptible populations, or lack of capacity to participate in decision-making process. These data are incorporated into the Environmental Justice Geographic Assessment Tool, to provide the information necessary to conduct a comprehensive preliminary analysis of any area of concern. Use of buffers is incorporated into the Environmental Justice Geographic Assessment Tool; population estimation is accomplished through the area-weighted methodology. Only race and income were considered in the DEIS analysis. The assessment in the DEIS failed to assess health or environmental impacts, aggregate or cumulative impacts, unique-exposure pathways, vulnerable or susceptible populations, or lack of capacity to participate in the decision making process. No social, economic, or health impacts were assessed. This section only provides location information for minorities and low-income populations, but **fails to provide any assessment of the four EJ indicators listed above.** 364. **Questions**: (1) Was the current EPA tool, described above, used for this analysis? (2) What are aggregate or cumulative health impact results of the proposed system on minority and low-income groups for each of the four EJ indicators: environmental, health, social and economic? 365. **Recommendations**: The "Durango" example fails to adequately assess environmental justice indicators and, due to its date, used older analysis techniques. **The section requires to be redone using the proper tool and derive the minimum results necessary to assess impacts on the four EJ indicators for these two counties**.
Figure 3-13-3 Detail of Block Group Boundaries for Populated Areas	3-100	Both maps	366. **Comment**. Neither map shows the transmission line corridors. Further, these maps are not color-coded, like Figures 3.13-1 and 3.13-2 367. **Recommendation**. Add the transmission line corridors on each of these maps. In addition, these maps need to be color-coded, similar to Figures 3.13-1 and 3.13-2.
Table 3.13-1 Pima County Census Block Groups on or Near	3-101	See comments	368. **Comment**. Block Group ID 9409901 (San Xavier District of the Tohono O'odham Reservation) is "across the street" of the South Substation, which is obviously close to the project that environmental justice (EJ), such that it should be included with checks in the 13th to 15th columns. 369. **Recommendation**. Include checks in the Western, Crossover, and

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Comment No. 363-365

Section 3.13 describes the affected environment as it pertains to environmental justice issues. The information and data presented in this section provide a baseline description of environmental justice issues against which the various alternatives could be evaluated to determine potential negative or positive effect on minority populations and low-income populations on or near the proposed transmission line corridors. The impacts associated with the proposed project are discussed in Chapter 4.

Comment No. 366-367

The purpose of Figure 3-13.3 is to show the unlabeled block groups in Figures 3.13-1 and 3.13-2.

Comment No. 368-369

Figures 3.13-1 and 3.13-2 shows the minority and low-income census block groups on near the three proposed corridor alternatives. Table 3.13-1 presents numerical information by race and poverty level for the census blocks on or near the corridors and indicates whether each block is intersected by any of the proposed corridors. While the substation abuts the far southeastern edge of census block group 9409901 (San Xavier District [Tohono O'odham Reservation]), the corridors do not intersect this census block.

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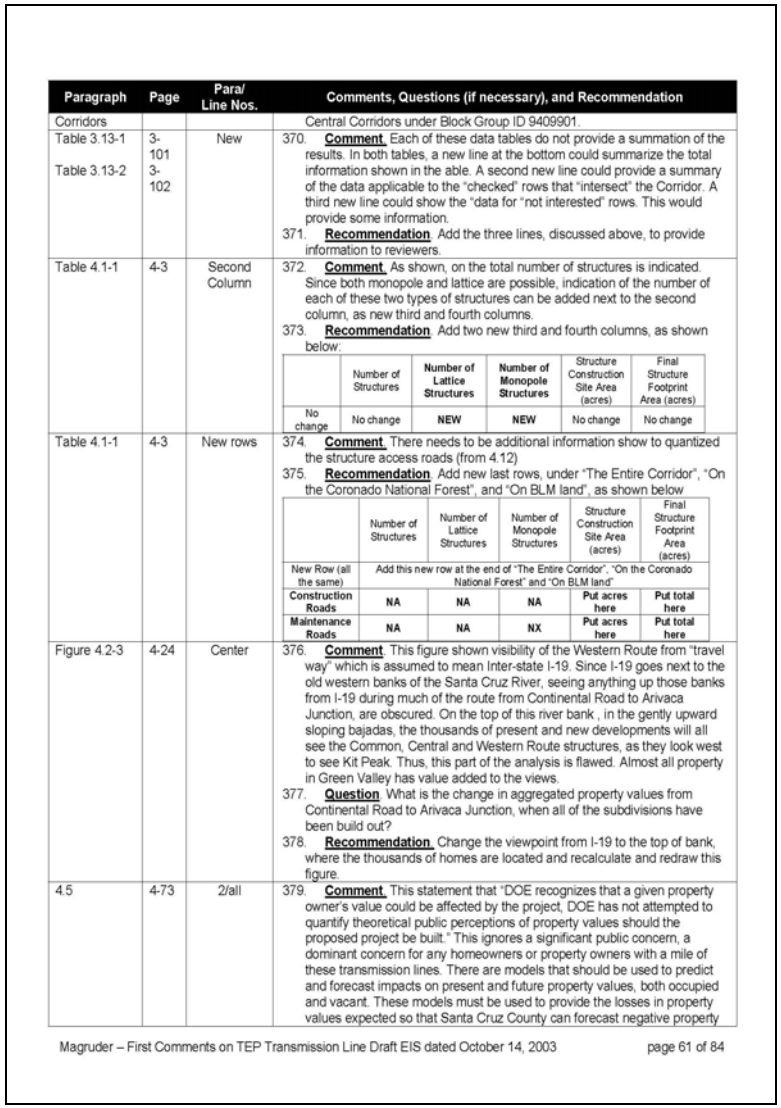

Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
Corridors			Central Corridors under Block Group ID 9409901.
Table 3.13-1 Table 3.13-2	3-101 3-102	New	370. **Comment**. Each of these data tables do not provide a summation of the results. In both tables, a new line at the bottom could summarize the total information shown in the able. A second new line could provide a summary of the data applicable to the "checked" rows that "intersect" the Corridor. A third new line could show the "data for "not interested" rows. This would provide some information. 371. **Recommendation**. Add the three lines, discussed above, to provide information to reviewers.
Table 4.1-1	4-3	Second Column	372. **Comment**. As shown, on the total number of structures is indicated. Since both monopole and lattice are possible, indication of the number of each of these two types of structures can be added next to the second column, as new third and fourth columns. 373. **Recommendation**. Add two new third and fourth columns, as shown below:
Table 4.1-1	4-3	New rows	374. **Comment**. There needs to be additional information show to quantized the structure access roads (from 4.12) 375. **Recommendation**. Add new last rows, under "The Entire Corridor", "On the Coronado National Forest", and "On BLM land", as shown below
Figure 4.2-3	4-24	Center	376. **Comment**. This figure shown visibility of the Western Route from "travel way" which is assumed to mean Inter-state I-19. Since I-19 goes next to the old western banks of the Santa Cruz River, seeing anything up those banks from I-19 during much of the route from Continental Road to Arivaca Junction, are obscured. On the top of this river bank , in the gently upward sloping bajadas, the thousands of present and new developments will all see the Common, Central and Western Route structures, as they look west to see Kit Peak. Thus, this part of the analysis is flawed. Almost all property in Green Valley has value added to the views. 377. **Question**. What is the change in aggregated property values from Continental Road to Arivaca Junction, when all of the subdivisions have been build out? 378. **Recommendation**. Change the viewpoint from I-19 to the top of bank, where the thousands of homes are located and recalculate and redraw this figure.
4.5	4-73	2/all	379. **Comment**. This statement that "DOE recognizes that a given property owner's value could be affected by the project, DOE has not attempted to quantify theoretical public perceptions of property values should the proposed project be built." This ignores a significant public concern, a dominant concern for any homeowners or property owners with a mile of these transmission lines. There are models that should be used to predict and forecast impacts on present and future property values, both occupied and vacant. These models must be used to provide the losses in property values expected so that Santa Cruz County can forecast negative property

	Number of Structures	Number of Lattice Structures	Number of Monopole Structures	Structure Construction Site Area (acres)	Final Structure Footprint Area (acres)
No change	No change	**NEW**	**NEW**	No change	No change

	Number of Structures	Number of Lattice Structures	Number of Monopole Structures	Structure Construction Site Area (acres)	Final Structure Footprint Area (acres)
New Row (all the same)	Add this new row at the end of "The Entire Corridor", "On the Coronado National Forest" and "On BLM land".				
Construction Roads	**NA**	**NA**	**NA**	**Put acres here**	**Put total here**
Maintenance Roads	**NA**	**NA**	**NX**	**Put acres here**	**Put total here**

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Comment No. 370-371

The summation totals requested by the commentor are already provided in the table by Block Group ID. For example, Block Group ID 9960001 has a total population of 858, of which 748 are non-Hispanic and 110 are Hispanic. There are 42 (5 percent) persons living below the poverty level and 13 percent of the population is Hispanic in that Block Group ID.

Comment No. 372-373

If an action alternative is selected for implementation by each of the Federal agencies through the issuance of a ROD, then precise siting of the ROW and the support structures within the ROW would involve input from cultural, biological, and visual specialists, to identify and minimize impacts to each area of land to be disturbed. The detailed engineering and design of the proposed project would be completed after the final siting of the corridor. For this reason, the Final EIS cannot speculate on the numbers of each type of structure.

Comment No. 374-375

Table 4.1-1 shows the amount of acreage that would be disturbed from the installation of the transmission line structure (i.e., lattice towers and monopoles). Table 4.12-1 shows the amount of currently undisturbed acreage that would be disturbed with the construction of access roads, use of construction laydown areas, and the installation of transmission line structures by corridor alternatives.

Comment No. 376-378

In Figure 4.2-3 of the EIS, the map of the Western Corridor is shaded to indicate visibility from travelway. As the Western Corridor crosses I-19 and continues southwest, residents, travelers, and recreationalists would have views of the proposed project in the foreground and middleground, with views from many areas in lower terrain obscured by the hills and main tailings piles in the area.

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<table>
<tr><th>Paragraph</th><th>Page</th><th>Para/ Line Nos.</th><th>Comments, Questions (if necessary), and Recommendation</th></tr>
<tr><td></td><td></td><td></td><td>tax. The sale of Citizens assets in this county will result in about $1,000,000 in less property tax. When combined with this summer's 22% rate increase by UniSource and meeting the state mandate to air-condition all public schools with larger utility bills, many teachers, county and city employees are being laid off. Additional layoffs, from lower property values and a lower property tax base accelerate this problem.
380. <u>Recommendations</u>: That the DOE provide detailed, at least on a zip code or similar basis, the resultant changes in property tax revenues for Santa Cruz County, the smallest county in Arizona. The results of this analysis shall be presented in paragraph 4.5, to be worded as follows:
"The DOE recognizes that property values will be lower in the vicinity of any selected Alternative. The overall Santa Cruz County property tax basis is predicted to decrease by $ MM,TTT,HTD with X% of this for residences, Y% for business and other non-residences, and Z% for vacant land in the vicinity of the Western, Central and Cross-Over Corridors and the Power Plant Alternative shown in Table 4.5-1 below which also includes the Power Plant Alternative.
Table 4-5.1 Estimated Total Changes in Property Values by Alternative
<table>
<tr><th>Property Type</th><th>Western Corridor Alternative</th><th>Central Corridor Alternative</th><th>Cross-over Corridor Alternative</th><th>Power Plant Alternative</th><th>No Action Alternative</th></tr>
<tr><td>Residences</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$ 0</td></tr>
<tr><td>Business</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$ 0</td></tr>
<tr><td>Vacant</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$ 0</td></tr>
<tr><td>Total</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$MM,TTT,HTD</td><td>$ 0</td></tr>
</table>
The total predicted decrease in property values from the Western Corridor will result in a decrease in Santa Cruz County property taxes and $ MM,TTT,HTD annually less revenue for schools and $ M,TTT,HTD annually revenue for fire districts. The total predicted decrease in property values from the TEP's route Alternatives: Central Corridor is $ MM,TTT,HTD, the Cross-over Corridor is $ MM,TTT,HTD; the Local Power Plant Alternative is $ MM,TTT,HTD; and from No Action will be no change from the present.
Also, it is possible that short and long-term property tax projections can be made, and if so, then inclusion of both will improve this area of the report.
It should be noted that the recent purchase of Citizens assets in Santa Cruz County by UniSource will decrease property tax revenue by almost $1,000,000. In addition to this significant reduction in tax revenue, the 22% electricity and 20.9% natural gas rate increases that went into effect on the closing of this purchase can not be met without layoffs necessary to pay for electricity necessary by the newly air conditioned schools. The county/city library system has stopped all book purchases to keep operating. The City of Nogales laid-off eight employees so that it can pay this electricity rate increase."</td></tr>
<tr><td>4.6.2.1
4.6.2.2
4.6.2.3</td><td>4-79
4-80
4-80</td><td>3/3 to 6
1/1 to 2
1/8 to 9</td><td>381. <u>Comment</u>. This refers to some "Best Management Practices (BMPs)" that will determine road slopes, grades, water bars, and rolling dips, etc. that impact erosion. These have not even been developed. This is essential information for decision makers as specific BMPs will reduce additional mitigation measures required of the Applicant.
382. <u>Question</u>. Why are not ALL the BMPs, for each Corridor, provided in this draft EIS so that government and private land managers and owners have assurance that truly BMPs will be employed?
383. <u>Recommendations</u>.
(1) Include <u>specific</u> BMPs for all routes and conditions in the next EIS.
(2) Further, extend the BMP process for <u>entire</u> corridors, and not just that part in the USFS.</td></tr>
<tr><td>4.9.1 Western Corridor</td><td>4-78</td><td>1/3 and 4</td><td>384. <u>Comment</u>. This paragraph states "Explosive blasting may be used as needed, based on the local geological conditions…"
385. <u>Questions</u>.</td></tr>
</table>

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Comment No. 376-378 *(continued)*

While there is a potential for construction of new houses on the hills to the west of I-19 and almost anywhere in the project area, until plans are presented, new housing construction is speculative. If such housing construction were to occur, the transmission line may be visible from potential residences on the hills to the west of the interstate, depending on the terrain setting of each individual house.

Comment No. 379-380

Any decrease in property values from the proposed transmission lines would be perception-based impact. Any connection between public perception of a risk to property values and future behavior would be uncertain or speculative at best, and therefore would not inform decisionmaking. Section 4.5 references a discussion of past studies of the impact of transmission lines and property values in other geographic areas. The studies conclude that other factors, such as general location, size of property, and supply and demand factors, are far more important criteria than the proximity of a transmission line in determining the value of residential real estate. Accordingly, while the Federal agencies recognize that a given property owner's value could be affected (positively or negatively) by the project, the Federal agencies have not attempted to quantify theoretical public perceptions of property values should the proposed project be built.

Comment No. 381-383

As indicated in the EIS, Section 4.6.2, specific BMPs would be defined once coordination between TEP, USFS, and ADEQ has been completed, prior to implementation of the proposed project.

Comment No. 384-385

Explosive blasting sites were not provided in the EIS because the areas requiring blasting along the corridor would not be known until the preferred alternative is selected and a detailed geotechnical investigation is conducted.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(1) Which sites will require explosive blasting? (2) Which sites have the "local geological conditions" that require explosive blasting? (3) How much explosives will be required at each site? (4) Will any sites require explosives that are within a mile of homes or residences? (5) Will some sites require multiple explosives? (6) Do any roads require explosives, if so, where? (7) How will explosives be handled, after each workday (stored or removed, where does it go, what is the security, fire sprinklers, etc.)? 386. **Recommendation**. The analysis cannot continue until the above questions are answered. (1) Please provide a listing of which sites and showing on a map where explosives will be required (and locations of residences). (2) Discuss how much "explosives" will be needed at each site. (3) Explosives handling, storage, and security needs to be included.
4.9.1	4-97	1 (all)	387. **Comment**. This paragraph states "for tower sites where workers or equipment are inserted by helicopter or sky crane…" 388. **Questions**. (1) Which sites are "tower" sites? (2) Which sites are where workers will be inserted by helicopter? (3) Which sites are where equipment will be inserted by helicopter or sky crane? (4) How many helicopter flights will be necessary at each site? 389. **Recommendation**. The analysis cannot continue until the above questions are answered. Without the answers, the rest of this section is meaningless, because no one can evaluate which sites will have noise from helicopters or from work equipment.
4.9.1 4.9.2 Central Corridor 4.9.3 Crossover Corridor	4-97 4-98 4-99	4 (all) and 5 (all) NEW NEW	390. **Comment**. The fourth paragraph only discusses jaguars. In the area of the Western Corridor wildlife populations include deer, bear, javalina, mountain lions, and bobcats. Further, different hunting seasons (including fowl) bring dozens of hunting parties into the area around the Western and Central Corridors. Due to their large number, residents have learned never to hike or go into these areas during hunting seasons (which varies by animal). Explosives will significantly impact wildlife movements, thus several days prior to each of the hunting seasons; explosive operations should cease, so that wildlife can return to their normal patterns. 391. **Questions**. (1) Will construction be occurring during any of the hunting seasons? (2) Will explosives be used during any of the hunting seasons? (3) How will TEP ensure that it's personnel are safe during the hunting seasons? 392. **Recommendations**. (1) Construction and explosive operations not be performed during any of the hunting seasons. (2) That all construction operations cease two days prior to each hunting season and that explosive operations cease at least five days prior to each hunting season.
4.9.1	4-97	6 and 7	393. **Comment**. The noise levels indicated exceed the thresholds of comfort in Table 3.9-1. These two paragraphs discuss noise levels averaged over a 24-hour period. 394. **Question** (1) Why can't all work, which has noise levels that exceed 70 dBA be performed on alternative days? (2) Why can't residents be compensated for high noise days so they can "go away" on those days? 395. **Recommendations**.

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Comment No. 387-389

Details on tower locations where workers or equipment will be inserted by helicopter or sky crane are not provided in the EIS because these decisions will be made during the design phase of the project, if TEP receives the Presidential Permit from DOE, and other required approvals from Federal, state, and local authorities.

Comment No. 390-392

Each agency will state any required mitigation measures in their respective RODs, based on the mitigation measures presented in Section 2.2.6 of the EIS, and any additional mitigation measures that the agency deems necessary.

Comment No. 393-395

The noise levels reported for Temporary Threshold Shift and Noise-Induced Permanent Threshold shift are examples taken from Canter 1977.

Each agency will state any required mitigation measures in their respective RODs, based on the mitigation measures presented in Section 2.2.6 of the EIS, and any additional mitigation measures that the agency deems necessary.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(1) That all sites where noise exceeds 70 dBA only have work performed on alternative days. This would give both wildlife and humans a chance for their hearing to return to normal levels, between a noisy day. (2) Further, on days that the noise exceeds 77 dBA, as shown in Table 4.9-2, each homeowner will be compensated $250 for each workday. This is so the family can adjust its plans and not be home when noisy work is being performed. (3) Further, residents within 1000 feet need to be issued "hearing protectors" that are optimized for the expected types of noise being planned.
4.10.1.1	4-107	5	370 **Question**. Is the ICNIRP 2003 reference the proper one?
4.10.1.1	4-107	6	371 **Comment**. October 29, 2001 should read January 15, 2002.
4.10.2.1 Western Route	4-109	Visual Light 1/3 to 5	372 **Comment**. The reference "(Chriswell 2002) refers to a gamma ray telescope which does not operate in the visual spectrum, thus this reference appears not valid as support for this sentence "There would be no effects on the operation of observatories in the project vicinity (Fred Lawrence Whipple and Kit Peak Observatories) from the proposed project." The gamma ray telescope project is now being developed for Kit Peak. 373 **Question**. What is the spectrum of the visual light and intensity generated by Corona effects? 374 **Recommendation**: (1) Based on the answer, there could be visual interferences. (2) Delete the above reference and sentence, unless supporting data are provided.
4.12.1 Western Corridor	4-114	1/4 to 5	375 **Comment**. It is expected that helicopters will be used for the Western Corridor. This sentence is in direct variance with TEP's testimony during the ACC Siting Committee hearings and the mitigation measures found in the ACC Order No. 64356 Exhibit 2. Further, **TEP is not authorized to change the ACC Order**, thus the reference (TEP 2003) also is incorrect. This sentence should be deleted.
4.12.1	4-114	1/4 to 5	376 **Recommendation**. Delete the entire third sentence in this paragraph.
4.12.2 Central Corridor	4-116	3/4 to 5	377 **Comment**. It is expected that helicopters will be used for the Western Corridor. This sentence is in direct variance with TEP's testimony during the ACC Siting Committee hearings and the mitigation measures found in the ACC Order No. 64356 Exhibit 2. Further, **TEP is not authorized to change the ACC Order**, thus the reference (TEP 2003) also is incorrect. This sentence should be deleted.
4.12.2	4-116	3/4 to 5	378 **Recommendation**. Delete the entire third sentence in this paragraph.
5.3 Cumulative Impacts Analysis	5-9	2/6 to 8	379 **Comment**. There is reference to VERITAS, a gamma ray telescope that was proposed for the Coronado National Forest. This project has been cancelled, thus this comment is not accurate.
	5-9	2/6 to 8	380 **Recommendation**. Deleted this sentence, which begins with "For example..." and end with "... lands."
4.13 Environmental Justice			381 **Comment**. This analysis is very weak with respect to the four Environmental Justice indicators: environment, health, social, and economic on minorities and low-income populations. For example, from Figures 3-13-1 and 3-13.3, the preferred corridor goes through 11 Census Groups, of which 8 have greater minority populations and 3 have low-income populations. Obviously, minority populations are paying more than their share for this project. Please review the EPA definitions and requirements for assessing EJ indicator effects. **This section is not acceptable without considering the four EJ indicators: environment, social, economic, and health. Health problems are significant issues in Santa Cruz County, especially in Nogales.** 382 **Questions**:

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Comment No. 396 *(Note that the following comments were not numbered consecutively by the commentor, and the number that the commentor assigned to each comment is provided in parentheses, which, in this case, is 370)*

In Section 4.10.1, subsection *Field Perception and Neurobehavioral Responses*, ICNIRP 2003 should reference the following sentence, "The International Commission on Non-Ionizing Radiation Protection Guidelines recommend that short-term exposures be limited to 4.2 kV/m for the general public."

Comment No. 397 *(371 in document)*

The date specified in *Field Perception and Neurological Response* in Section 4.10.1 for the issuance of the Amended Certificate of Environmental Compatibility will be changed from October 29, 2001 to January 15, 2002.

Comment No. 398-400 *(372-374 in document)*

The text is correct as written.

Comment No. 401-404 *(375-378 in document)*

The ACC Order 64356 does not specify that helicopters should be used. Condition 11 (d) requires TEP to use the minimization of detrimental impact on the environment as the deciding factor when making specific easement routing decisions for construction of the transmission lines. TEP fully intends to abide by the conditions set forth in the ACC order and as such would use helicopters and lattice towers whenever necessary to minimize impact on the environment. The reference TEP 2003 in Section 4.12.1 refers to data provided by TEP regarding the use of helicopters on the Western Corridor.

Comment No. 405-406 *(379-380 in document)*

The VERITAS project has been remanded, but has not been cancelled.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			(1) Where are the analyses for each of the four EJ indicators? (2) What are the EJ impacts on minority and low-income populations? (3) What models were used to predict these results? 383 **Recommendations**. **The section requires to be redone using the proper tool and derive the minimum results necessary to assess impacts on the four EJ indicators for these two counties**.
Chapter 6 Unavoidable Adverse Environmental Impacts	6-1 6-1	Erosion 2/1 Erosion 2/1	384 **Comment**. There is a reference to "Best Management Practices (BMP)" which is not specific. In order to determine what practices, processes, techniques and procedures that will be used to solve this issue, a specific reference is necessary. 385 **Recommendation**. Replace "Best Management Practices (BMP" with the specific practice to be implemented.
Chapter 8 Short-Term Use and Long-Term Productivity	8-1	4/new	386 **Comment**. In section 4.5, the "DOE recognizes that a given property owner's value could be affected by the project, DOE has not attempted to quantify theoretical public perceptions of property values should the proposed project be built." This ignores a significant public concern, a dominant concern for any homeowners or property owners with a mile of these transmission lines. There are models that should be used to predict and forecast impacts on present and future property values, both occupied and vacant. These models must be used to provide the losses in property values expected so that Santa Cruz County can forecast negative property tax. The sale of Citizens assets in this county will result in about $1,000,000 in less property tax revenue. When combined with this summer's 22% rate increase by UniSource and meeting the state mandate to air-condition all public schools with larger utility bills, many teachers, county and city employees are being laid off. Additional layoffs, from lower property values and a lower property tax base accelerate this problem. 387 **Recommendations**: That the DOE provide detailed, at least on a zip code or similar basis, the resultant changes in property tax revenues for Santa Cruz County, the smallest county in Arizona. The results of this analysis shall be presented in the paragraph, to be worded as follows: "The DOE recognizes that property values will be lower in the vicinity of any selected Alternative. The overall Santa Cruz County property tax basis is predicted to decrease by $ MM,TTT,HTD with X% of this for residences, Y% for business and other non-residences, and Z% for vacant land in the vicinity of the Western, Central and Cross-Over Routes. This total will
Chapter 9 Applicable Environmental Laws, Regulations, Permits and DOE Orders	9-1	Table 9-1	388 **Comment**. The penetration of the 345 kV transmission lines into Military Operational Airspace (MOA) Fuzzy and Ruby in the ESA. The USAF owns and controls the airspace to 100 feet above ground in the Fuzzy MOA. TEP will be required to obtain USAF, Air National Guard (ANG), and FAA Approval. In addition, TEP plans to use helicopters to string cable across the International border that will, at a minimum, require FAA approval. 390 **Recommendations**: Add following to this table: **Agency** — **Permit/Approval** FAA — Temporary Airspace Authorization Permit (construction helicopter flights in Fuzzy One) FAA — International Airspace Authorization to string cables (for helicopters that will string cables across the US-Mexican border) FAA — Permanent Airspace Authorization Permit (towers penetrations into Fuzzy One Airspace, map changes, NOTAMs) US Air Force — Temporary Fuzzy One Airspace Authorization permit (construction helicopter flights in Fuzzy One) US Air Force — Permanent Fuzzy One Airspace Authorization permit (tower penetrations into of Fuzzy One Airspace, maps changes, etc.) Air National Guard — Temporary Authorization to use Fuzzy One Airspace (construction helicopter flights in Fuzzy One) Air National Guard — Permanent Authorization to use Fuzzy One Airspace (tower penetrations into Fuzzy One airspace, briefing material changes,

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Comment No. 407-409 *(381-383 in document)*

Impacts to minority health, environment, social, and economic are the same as the impacts discussed in Chapter 4 for the general population. Neither DOE nor its cooperating agencies are aware of any special circumstance (e.g., unique exposure pathways, food gathering practices, etc.) that would result in disproportionate impacts to minority populations or low-income populations as a result of the proposed project.

Comment No. 410-411 *(384-385 in document)*

Best Management Practices to address erosion control would vary depending on site-specific conditions. As indicated in the EIS, Section 4.6.2, specific BMP would be defined once coordination has been completed, prior to implementation of the proposed project.

Comment No. 413-414 *(386-387 in document)*

Refer to the response to the DeConcini McDonald Yetwin & Lacy, P.C., Comment 7 on why the Federal agencies have not attempted to assess potential impacts to property values from the proposed project.

Comment No. 415-416 *(388-390 in document)*

Table 9-1 is not intended to be an exhaustive list of every approval that TEP may or may not need, but is intended to cover the primary potential approvals and permits. In addition, it is not clear that TEP would require helicopter flights in the Fuzzy MOA. Should helicopters be required, TEP would obtain all necessary permits and approvals.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			training instructions changed, etc.)
Table 9-2	9-2	EO 11988 Flood plain Management	391 **Comments**. This states, "no practical alternative in floodplains and wetlands Federal agencies are required to prepare a floodplains and wetlands assessment, design mitigation measures, and provide public review. This public review must be held prior to the Final EIS, or this whole project may have to be redefined. 392 **Questions** (1) Where is this statement? (2) Why isn't this statement included in this section of the EIS? (3) Has DOE agreed to write such a statement? (4) What floodplain "alternatives" were considered? (5) Where is the analysis of these alternatives? (6) What was the result of that analysis? (7) Was the TEP Cyprus Sierrita Substation considered as an alternative, since this transmission line goes next to it? (8) Why isn't that analysis provided in the Draft EIS so that decision makers could review that assessment? (9) When will this assessment be accomplished, hopefully, after the "final design" has been completed? (10) If the "final design" has a conflict, has TEP agreed to make any and all DOE recommendations? (11)When will the PUBLIC REVIEW be held, before or after the Final EIS? (12) Will this Public Review include representatives of the San Xavier Indian Reservation, which is across West Pima Mine Road, and downstream of the South Substation? 393 **Recommendations**. (1) Determine the answers to these questions, then either relocate away from the floodplain, or obtain the DOE statement and place it within the EIS. (2) Coordinate all of the floodplain activity, as a minimum, with the Tohono O'odham Nation. (3) Hold and complete public review in Southern Arizona, using the EIS address list for notifications.
Table 9-2	9-2	New	394 **Comment**. The penetration of the 345 kV transmission lines into Military Operational Airspace (MOA) Fuzzy and Ruby in the ESA. The USAF owns and controls the airspace to 100 feet above ground in the Fuzzy MOA. TEP will be required to obtain both USAF, Air National Guard, and FAA Approval. In addition, compliance with the appropriate *Federal Aviation Regulations (FAR)* and Air Force Instruction AFI 11-206, *General Flight Rules*, and AFI 13-201, *U.S. Air Force Airspace Management* is required. In general, this will require making changes to all airspace maps, documents, in-flight handbooks, and other FAA and USAF documentation, prior to becoming a change in airspace can be effective.
Table 9-2	9-2	New	395 **Recommendations**. Add new Entries in Table 9-2, five columns to reflect airspace permits. Additional information will be necessary as the details of these procedures are not readily available.

Resource Category	Statute/ Regulation/ Order	Citation	Administrating Agency	Permits, Approvals, Consolations, and Notifications
Air Space	Federal Aviation Regulations (FAR)	FAR 91.15, EO 10854	Federal Aviation Agency (FAA)	Airspace Authorization Permit
	US Air Force AFI 11-206	32 CFR Part 898	Department of the United States Air Force (USAF)	Fuzzy One Airspace Authorization Permit
	US Air Force AFI 32-7061	40 CFR 1500-1508	Air National Guard Readiness Center, ANG	Regulations for Implementing the Procedural Provisions of the National

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Comment No. 417-418 *(391-393 in document)*

A Floodplains and Wetlands Assessment, per Title 10, *Code of Federal Regulations, Part 1022, Compliance with Floodplain/Wetlands Environmental Review Requirements* has been conducted for the proposed project and is included in Appendix C of the EIS.

Comment No. 419-420 *(394-395 in document)*

Prior to any construction of the proposed project, TEP would acquire all necessary permits from USAF.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation				
						Environmental Planning Center, Herndon VA	Environmental Policy Act as implemented by the Air National Guard (ANG)
				US Air Force AFI 11-206, AFI 13-201	Derived	Air National Guard (ANG), 162nd Air Wing, Tucson, AZ	Authorization to use Fuzzy One Airspace and coordination with Air Traffic Control Assigned Air Space (ATCAA) and Military Training Routes (MTRs)
Table 9-2 Other (continued)	9-6	Obstruction Marking and Lighting	396 **Comment**. This entry, in column five, states that this standard is "**potentially applicable**." During the ACC Line Siting Committee hearings, it was clearly stated that NO navigation markers (such a Orange Balls) or lighting objects (such as strobe lights, white or red blinking/steady lights, etc.) would be required for any of the TEP transmission line structures. 397 **Recommendations**. This is a very important issue and resolution is critical. Due to the several airports in the vicinity of the transmission line, the "dark sky" lighting state, Pima County and Santa Cruz County ordinances, and such lights having a potential for being installed in the US National Forest, resolution must be made prior to any final decision on this project. IF such lighting is required, then this fact must be brought to the public before any permits to construct this system be approved.				
Chapter 10	10-3	EPNG	398 **Comment**. A telephone conservation is referenced for concurrence in "the 100 foot requirement of "at least 100 ft between the edge of the pipeline ROW and support structures in adequate (EPNG 2002)." In view of the complex relationships between the change from 500 to 2,000 MW, and the limited impacts considered by the ACC when determining the 100 feet (which should have been at least 138 feet), the omission of the second gasline in the ROW, no considerations for natural gas substations which "bleed" natural gas for up to 36-hours, considerations of meteorological conditions soil resistively, that permit explosive natural gas concentrations, grounding considerations, lightning suppression, omission of any impacts due to induced currents, corrosive and erosion status of these 45-year old gas pipelines, lack of measurement data, and other interactive factors, lead the ACC to state a "minimum" so that the correct, safe offset could be calculated based on field data. The was agreement that pre-determination of the liabilities between EPNG and TEP have to be resolved PRIOR to final design so that an agreement can be made between these two companies. Resolution of liability after a major explosive incident with loss of human life, based on know conditions that need to be designed into the system, is irresponsible. A telephone conservation reference is inadequate due to the potential safety impacts between these two systems. 399 **Recommendation**. That an Agreement be made between El Paso Natural Gas Company and TEP that assigned legal liabilities base on know conditions along the route, an agreed minimum safe separation distances, that will, with extremely high confidence, prevent explosive conditions from natural gas leakage from the pipeline and EPNG substations, based on corrosion measurements, impacts on the installed cathothic protection system due to 2,000 MW of electric voltage and electromagnetic field EMF), since each system can damage the others due to fire, explosion, or corrosion. As a minimum the FINAL EIS should include a signed copy by corporate officers of this liability agreement (or Memorandum of Understanding as to Liabilities between EPNG and TEP to the Electrical and Natural gas systems), as a FEIS attachment.				
Chapter 11 References	11 (all)	all	400 **Comment**. This list of reference is not complete. Each legal citation, Federal Act, and all other documents referenced within this EIS, including appendixes, needs to be included in this Chapter.				

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Comment No. 421-422 *(396-397 in document)*

As stated in Table 2.2-2, TEP Mitigation Practices Included in the Proposed Action, towers and/or ground wire would be marked with highly visible devices, such as colored balls or lights, if required by governmental agencies. It is currently anticipated that no visual markers such as colored balls or lights would be required for the proposed project. Consultations with the agencies regarding required visual markers for each corridor are ongoing.

Comment No. 423-424 *(398-399 in document)*

See the response to Comment 48-49 above.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			401 **Recommendation**. Include ALL documents referenced herein, including all legal citations, including title, laws and statutes and documents referenced in the EIS, including all appendixes. Providing websites will facilitate review by decision makers. Examples Include some references in the NOI: 10 CFR 205.320- 329 10 CFR 1022 (floodplain and wet plain review requirements) 66 FR 35950-35952 Notice of Intent Executive Order 10485 Executive Order 12038 NEPA 1969 National Environmental Policy Act of 1969
Chapter 11	11-4	New	402 **Comment**. Some references are missing. 403 **Recommendations**. Add following new references: EO 10854 Executive Order 10854 (exact title unknown - establishes the relationship between DoD, State Department, and FAA regarding warning areas and military operations within airspace under the purview of the FAA air traffic services) FAA (TBD) Federal Aviation Requirements
Chapter 11	11-5	NIEHS 1999 1/2	404 **Comment**. The actual date on this document is May 4, 1999. 405 **Recommendation**. Change the date of this document from "June" to "May 4"
Chapter 11	11-9	WECC 2003	406 **Comment**. The URL for reference WECC 2003 , http://www.wecc.biz/documents/policy/wecc-reliability-criteria 802.pdf requires a password to access. 407 **Recommendation**. Either provide the information to access the data or a copy of the appropriate data in a Appendix (on CD-ROM) so it can be reviewed as a part of the EIS.
Chapter 12	12-3	RAPID (new)	408 **Comment**. Add the definition of RAPID, used in Appendix B. 409 **Recommendation** Electric and Magnetic Fields Research and Public Information Dissemination Program (EMF-RAPID Program)
Appendix A	A-1 to A-26	All	410 **Comments**. This Appendix contains correspondence between DOE's EIS Contractor and various organizations. Most are requests for information without responses. The letter from Arizona State Historical Preservation Office has many actions that were not responded to in this version of the Draft EIS. 411 **Question**. Where are the answers and why hasn't the initial letter been followed up? 412 **Recommendations**: (1) The results of actions from SHPO are not included in this Draft EIS. (2) Provide responses from all letters in this appendix, that show each agency or activity notified has read, at least the draft EIS, and that the response contains their comments. (3) For each such activity, provide a chronological log, in tabular form, containing the minimum entries shown, such as ***Table A-1 Chronology of Action Items with the _____ Organization***
	A-2	Fm SHPO	
Appendix A	A-19	All	413 **Comment**. This letter that the monopoles and lattice towers does not clearly state that these will extend the whole north-south length of the Fuzzy MOA. Thus, training aircraft, flying east-west, will have to increase altitude during all low-level training missions to avoid these towers. The 162nd Fighter Wing, which owns some of the most unique low level air routes at 100 feet above ground, used for extensive training, over 25,000 flights a year in Fuzzy MOA, needs to be made aware that these poles will in his military airspace. 414 **Recommendation**. That a meeting be established with the 162nd Fighter Wing Commander, the Air National Guard, the Federal Aviation Administration, to ensure that airspace considerations have been solved.

Date, time	Action	Status (Open, Closed)	Contact Person	Follow up by

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Comment No. 425-426 *(400-401 in document)*

All Federal regulations cited in the TEP EIS are publicly available at http//www.gpoaccess.gov/cfr/index.html and are not listed in Chapter 11, References, of the EIS.

Comment No. 427-428 *(402-403 in document)*

The Executive Order 10854 mentioned by the commentor was not added to Chapter 11, References because it was not used in the EIS.

Comment No. 429-430 *(404-405 in document)*

The date for reference NIEHS 1999 will be changed from June 1999 to May 1999.

Comment 431-432 *(406-407 in document)*

A hardcopy of the document referenced WECC 2003 in Chapter 11 has been made available in the administrative record.

Comment No. 433-434 *(408-409 in document)*

A reference to the acronym RAPID (Research and Public Information Dissemination Program) could not be found in Appendix B. It will not be added to the acronym list.

Comment No. 435-437 *(410-412 in document)*

See Table 10-2, Summary of Consultations.

Comment No. 438-439 *(413-414 in document)*

The letter is correct as written, and the response is indicated in Table 10-2.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			and that a **Memorandum of Understanding** (or equivalent) has been signed by all of these commands and agencies, prior to release of the Final EIS.
Appendix B Electric and Magnetic Fields Background Information	B-1	2 (all)	415 **Comments**. This paragraph only selects and choose selective quotes from the NIEHS Executive Summary. 416 **Questions**. Why is the NIEHS "conclusion" no included in its entirety? 417 **Recommendation**. Change this paragraph to read: From the NIEHS Executive Summary, the conclusions state: "The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak. The strongest evidence for health effects comes from associations observed in human populations with two forms of cancer: childhood leukemia and chronic lymphocytic leukemia in occupationally exposed adults. While the support from individual studies is weak, the epidemiological studies demonstrate, for some methods of measuring exposure, a fairly consistent pattern of a small, increased risk with increasing exposure that is somewhat weaker for chronic lymphocytic leukemia than for childhood leukemia. In contrast, the mechanistic studies and the animal toxicology literature fail to demonstrate any consistent pattern across studies although sporadic findings of biological effects (including increased cancers in animals) have been reported. No indication of increased leukemias in experimental animals has been observed. The lack of connection between the human data and the experimental data (animal and mechanistic) severely complicates the interpretation of these results. The human data are in the "right" species, are tied to "real-life" exposures and show some consistency that is difficult to ignore. This assessment is tempered by the observation that given the weak magnitude of these increased risks, some other actor or common source of error could explain these findings. However, no consistent explanation other than exposure to ELF-EMF has been identified. Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings. The NIEHS concludes that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. In our opinion, this finding is insufficient to warrant aggressive regulatory concern. However, because virtually everyone in the United States uses electricity and therefore is routinely exposed to ELF-EMF, passive regulatory action is warranted such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. The NIEHS does not believe that other cancers or non-cancer health outcomes provide sufficient evidence of a risk to currently warrant concern. The interaction of humans with ELF-EMF is complicated and will undoubtedly continue to be an area of public concern. The EMF-RAPID Program successfully contributed to the scientific knowledge on ELF-EMF through its support of high quality, hypothesis-based research. While some questions were answered, others remain. Building upon the knowledge base developed under the EMF-RAPID Program, meritorious research on ELF-EMF through

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Comment No. 440-442 *(415-417 in document)*

The NIEHS conclusion presented in the Draft EIS is consistent with the other independent studies presented in Appendix B. The NIEHS study mentioned in Appendix B of the Final EIS has not been added because the applicable portion is publicly available as part of the administrative record of the EIS.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			carefully designed, hypothesis-driven studies should continue for areas warranting fundamental study including leukemia. Recent research in two areas, neurodegenerative diseases and cardiac diseases associated with heart rate variability, have identified some interesting and novel findings for which further study is ongoing.
Appendix C Floodplains/ Wetlands Assessment	C-1	Introduction 1/8 to 11	418 **Comment**. In this sentence, it states the "because the **final siting and engineering** of the transmission line **has not been completed**, alternatives that specifically address **floodplain/wetland impacts have not been developed**. Therefore, measures to avoid and minimize wetland impacts can only be discussed in **general terms**." [emphasis added] House plans require much more information than provided for South Substation. TEP has filed with the Arizona Corporation Commission on August 5, 2003, before this draft EIS was released, "that some of the agencies involved in the EIS process have said that they will not comment on specifics of the Project until they are provided with a final location by either DOE or the U.S. Forest Service." [ACC Docket No. E-01032A-99-0401, "Joint Application for delay of the in-service deadline or, in the alternative, waiver of penalties and for other appropriate relief" at 8 lines 5 to 7.] Thus, without completing the final design, estimated to take 3 months in the Line Siting Hearings, TEP has placed itself in a stalemate. The *Federal Register* NOI required a Floodplain Analysis and Wetland Assessment. These are separate requirements for each of these activities. 419 **Questions**. (1) Why has the draft EIS been submitted with "final siting" determined and analyzed? Without "final siting" this plan fails to provide information necessary for decision makers, in particular, regarding flood plain impacts on the South Substation, the northern terminal of the proposed project. (2) **When will final siting be completed**, because without such decisions by TEP, there is not way any agency can approve this permit? (3) How can any "general" flood avoidance mitigation measures be proposed for review when none are proposed? (4) Why should any federal, state, tribal, or local agency approve a general floodplain/wetlands analysis which has "not been developed"? (5) Where is a "compliance matrix" which shows the requirements for these two activites, that confirm either compliance, non-compliance, or rationale for a different approach, methodology, or process used by TEP? 420 **Recommendations**. (1) Without these two analysis being complete, this draft EIS should be rejected as being non-compliant with the DOE's *Federal Register* announcements for this project. (2) As a minimum, this Appendix has to be resubmitted, to comply with the requirements for each of these analyses.
C.1 Introduction and Methods	C-1	3/(all)	421 **Comments**. This states that "IF DOE determines that there is no alternative to implementing a proposed project in a floodplain, a brief statement of finding must be prepared." 422 **Questions** (1) Why isn't this statement included in this section of the EIS? (2) Has DOE and all other government agencies agreed with such a statement? (3) What floodplain "alternatives" were considered? (4) Where is the analysis of these alternatives? (5) When will completion of this analysis be announced, including Public Notice, so that those in southern Arizona can make comments and attend the required hearings. (6) Since the *Federal Register* NOI announcement indicates the EIS will contain an Floodplains Assessment, is what is presently in the draft just a summary, a preliminary, or an independent assessment of the required

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Comment No. 443-445 *(418-420 in document)*

The "Notice of Intent to Prepare an Environmental Impact Statement (EIS) and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement" for the proposed project was published in the *Federal Register* (66 FR 35950) on July 10, 2001. By including the Floodplain and Wetlands Involvement in this Notice of Intent, and taking public comments on the entire Draft EIS (including the Floodplain/Wetlands Assessment included in Appendix C), DOE fulfilled the requirements of its regulations for "Compliance with Floodplain/Wetlands Environmental Review Requirements" (10 CFR Part 1022).

As discussed in Section 1.6.6, an EIS does not contain the final decisions by the agencies. An EIS is not meant to be the document in which an agency presents its final decision. Rather, it is intended to be a tool that informs Federal decision makers of the environmental consequences of choosing among the alternatives available to them. However, in the Final EIS, the agencies' preferred alternative is presented. Each agency's final decision is set forth in a separate ROD, or a letter of concurrence in the case of USIBWC.

If an action alternative is selected and final siting of the proposed project has been determined, a Final Floodplain/Wetlands Assessment would be conducted. General impact avoidance on the floodplain and wetlands is discussed in Appendix C.3 of the Final EIS.

Comment No. 446-448 *(421-423 in document)*

The final siting and engineering of the transmission line has not yet been completed and alternatives that specifically address floodplain/wetland impacts have not yet been developed. A Final Floodplain/Wetlands Assessment would be conducted once the final siting of the transmission line has been determined and if the Federal agencies determine that there is no alternative to implementing the proposed project in a floodplain, a brief statement of finding would be prepared (see Appendix C of the Final EIS).

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			section 401 and 404 reports? (7) Have the section 401 and 404 reports been completed, and if so, what is their availability? (8) What was the resultant decisions, mitigation measures, and actions necessary for TEP to comply of that analysis? (9) Was the TEP Cyprus Sierrita Substation considered as an alternative, since this transmission line goes next to it? (10) Why isn't that analysis provided in the Draft EIS so that decision makers could review that assessment? (11) When will this assessment be accomplished, hopefully, after the "final design" has been completed? (12) If the "final design" has a conflict, has TEP agreed to make any and all DOE recommendations? 423 **Recommendations**. Determine the answers to these questions, then either relocate away from the floodplain, or obtain the DOE statement and place it within the EIS.
C.1 .C.2	C-1 2/6	4(all) reference	424 **Comments**. The paragraph implies that a 100-year floodplain assessment is satisfactory for the South Substation, which is the northern terminal for the proposed TEP transmission line system. This transmission line system is rated to be capable of transporting 2,000 MW of electricity (only 500 MW initially). TEP has a maximum demand load of 2,060 MW on August 12, 2003, its highest load ever. This proposed TEP 2,000 MW transmission line will capable of providing all the power of this major city. The South Station is poorly represented throughout this version of the EIS; however, the TEP ACC Application contained a layout of that substation (Exhibit G-1.1, 345 V South Substation, dated Feb. 2001). This shows expansion to the southeast ad additional 100 feet equating to 58,600 square feet (5,440 meters square. In addition, an additional "future 345 kV to Vail" expansion is indicated. Based on this and USACE criteria, the Substation qualifies as a "CRITICAL" facility, which requires use of the 500-year floodplain, and a higher degree of protection for that category of site. See definition of floodplain on page 12-12 of the Draft EIS. Obviously, TEP understands that the South Substation is a CRITICAL facility and is required to meet the 500-year floodplain requirements, not those for the 100-year requirements. 425 **Questions**. (1) Why was the South Substation 500-year floodplain analysis not provided in this draft version of the EIS? (2) If a map does not exist, why has TEP not accomplished the necessary analysis to answer the questions? 426 **Recommendations**. (1) Conduct the 500-year flood plain analysis for the South Substation and transmission lines within that boundary. (2) Complete this and associated 401/404 analyses and include copies of those results in the next version of this draft EIS.
Appendix C, Figure 2 Figure 3 Figure 4 Figure 5	 C-4 C-5 C-6 C-7	 All All All All	427 **Comments**. These are not technical figures, they have not been signed by a Registered Professional Civil Engineer. They do not show contours, all structures, easements, road, rights-way. With topographical quality maps, floodplain assessments fail all "confidence tests." Further, these floodplain maps all need to be modified to show both the 100-year and 500-year floodplains. **These maps are unsatisfactory for a flood plains analysis.** 428 **Recommendation**. Resubmit this maps drawn and approved by a professional engineer.
Appendix C, Figure 2	C-4	All	429 **Comment**. This figure shows the "approximate boundary" of the South Substation. From TEP 2001 (ACC CEC Application), see Exhibit G-1.1, for the 345 kV South Substation, and its the equipment layout. This figure and section 2.2.1, shows that the new 345 kV bay to interconnect with Gateway will expand this substation approximately 100 feet to the southeast, in the

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Comment No. 446-448 *(425-423 in document)* ***(continued)***

Regarding permits or review requirements under Section 401 and 404 of the *Clean Water Act*, refer to Green Valley Public Meeting (September 25, 2003, 3-5 pm), Comment 60.

Comment No. 449-451 *(424-426 in document)*

Sections 3.7, 4.7, and Appendix C of the Final EIS has been modified to include the 500-year floodplain of the South Substation**.**

Comment No. 452-453 *(427-428 in document)*

An EIS is not a detailed engineering design document meant to certify the merits of a project's design, but rather a document that identifies and discloses potential environmental impacts. The level of project design detail required for assessment of potential environmental impacts in an EIS depends upon the degree to which project design details could affect environmental impacts. Scaled diagrams of the proposed monopole and lattice tower transmission line structures are shown in Figures S-3 and S-4 of the summary, and in Figures 1.1-1 and 1.1-2. TEP would prepare the final engineering and construction plans for the transmission line within the selected corridor after each agency has issued a ROD (refer to the response to Transcript 1, Comment MM-4).

Regarding topographic map for the floodplain assessment, refer to Green Valley Public Meeting (September 25, 2003, 3-5 p.m.), Comment 63.

Comment No. 454-456 *(429-431 in document)*

Figure 2 of Appendix C of the Final EIS has been modified to show the 100-ft expansion to the South Substation.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			direction of the Santa Cruz River. This expansion needs to be shown on Figure 2. These figures are more like cartoons than engineering drawings.
			430 **Questions**. (1) Where are photographs of this area found in this version of the draft EIS? (2) Will photographs be provided in the next version of the South Station expansion requirements?
			431 **Recommendations**. (1) Add Exhibit G-1.1 from the ACC CEC Application for South Substation to Appendix C. (2) The land contours, flood plain details, railroad and automobile bridges need to be shown, as prior storms have overflowed them with all maps in this Appendix signed by a Registered Professional Civil Engineer. (3) Additional facilities, within at least 1,000 feet of the South Substation need to be shown, along with land contours.
Appendix C Figure 4	C-6	Central Corridor	432 **Comments**. This figure does not show the correct Central Corridor alignment for Segment Leg 9, as specified in the *Federal Register* and TEP's ACC Application, Exhibit A-4b. Leg 10, which is shown, was with the former Eastern Corridor.
			433 **Recommendation**. Correct the Central Corridor to reflect the requested corridor..
Appendix C, Figure 5	C-7	All	434 **Comment**. This figure shows the outline of the Gateway Substation. From TEP 2001 (ACC CEC Application), Exhibit G-1.2, Proposed Gateway Substation Landscape and Revegetation Plan, the equipment layout is shown. The Valencia changes were omitted.
			435 **Recommendation**. (1) As a minimum add Exhibit G-1.2 (or equivalent) from the ACC CEC Application for Gateway Substation to Appendix C. (2) Show the transmission line towers that go to the Valencia Substation. (3) Add a new figure, such as G-1.2 (Gateway landscaping and revegetation plan) and G-1.3 (New Valencia Switchyard). (4) Ensure all of these have been approved by a Professional Engineer.
Appendix C, Figure 6 (NEW)	C-7a	All	436 **Comment**. There is no figure shows floodplains with respect to the Valencia Substation or basic equipment at this substation. From TEP 2001 (ACC CEC Application), Exhibit G-1.3, New Valencia Switchyard, the equipment layout is shown.
			437 **Recommendation**. (1) Include the flood plain analysis for the Valencia Substation, and (2) Add Exhibit G-1.3(or equivalent) from the ACC CEC Application for Valencia Substation to Appendix C.
C.1.2.2 Wetlands	C-8	3/2 to 4	438 **Comments**. This sentence, "Wetland functions and values include water quality preservation, flood protection, erosion control, biological productivity, fish and wildlife habitat, cultural values, aesthetic values, economic values and scientific values." Each of the watersheds flood protection in the vicinities of these corridors has these values. The EPA provides a classification scheme and data that allows cumulative effects of this project to be assessed. The USACE jurisdictional responsibilities are not relevant to the preservation of the most important qualities of life in Arizona. The Federal Register required that a "cumulative effects analysis" be included in the EIS. None is present that analyzes the above for watersheds.
			439 **Questions**. (1) **Where are watershed maps that each corridor crosses**? (2) Where are the EPA Watershed data located in this proposed draft EIS? a. Assessments for each watershed along these routes that assesses water quality preservation for present and the future? b. Assessments for each watershed along these routes that assesses flood protection for present and the future? c. Assessments for each watershed along these routes that assesses

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Comment No. 457-458 *(432-433 in document)*

Refer to Comment 40-41 above for discussion on Leg 9 of the Central Corridor.

Comment No. 459-460 *(434-435 in document)*

The 115-kV transmission line from Gateway Substation to the Valencia Substation has been added to figures throughout the Final EIS. Due to security issues, equipment layout is not shown in the Final EIS.

Comment No. 461-462 *(436-437 in document)*

A floodplain analysis for the existing Valencia Substation is beyond the scope of the Federal actions.

Comment No. 463-465 *(438-440 in document)*

The level and methods of analysis conducted are appropriate.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			erosion control for present and the future? d. Assessments for each watershed along these routes that assesses biological productivity for present and the future? e. Assessments for each watershed along these routes that assesses fish and wildlife habitats for present and the future? f. Assessments for each watershed along these routes that assesses Native American, Spanish colonial, Mexican, early Western and present American cultural values for present and the future? g. Assessments for each watershed along these routes that assesses aesthetic values for present and the future? h. Assessments for each watershed along these routes that assesses economic values for present and the future? i. Assessments for each watershed along these routes that assesses scientific values, especially with respect to biological reserves along proposed several routes for present and the future? 440 **Recommendations**. Complete these all of these assessments as required cumulative effects assessments.
C2	C-9	1/ 1 to 4	441 **Comments**. These two sentences indicate that the 58.500 square foot addition to the South Substation would "increase" flood elevation and "increase in downstream flood losses and long-term negative impacts on life an property." Directly to the east of the South Substation is the large Molybdenum Processing plant, which processes heavy metals for the local mining industry. **Reducing the width of the river's floodplain on the western side of the Santa Cruz River at the South Substation will increase the flooding potential at this plant with hazardous material polluting the Santa Cruz River, flowing through the San Xavier Reservation and into downtown Tucson. This** has not been assessed at all in this draft version of the EIS. **This is a critical deficiency**. 4.4.2. **Questions**. Has this conclusion been discussed with the Tohono O'odham Nation, which is immediately downstream of the South Substation? (1) What are the precise flood control measures proposed for the South Substation by TEP? (2) Do all the Pima County, City of Tucson and Town of Sahuarita flood control officers agree with any of the flood control measures proposed by TEP? (3) Has TEP considered closing or stop expansion at the South Substation due to these reasons? (4) Has TEP submitted any of the flood permit requests for this facility, as a minimum, for a draft or conceptual review? 442 **Recommendations**. (1) That all parties involved with flood control and floodplain analysis review these proposals, prior to the next version of the draft EIS being released. (2) That TEP start all the flood related permit process, because changes to meet those requirements may have significant impacts on this project.
C.3 Impact Avoidance	C-10	1/2 to 8	442 **Comments**. This final conclusion, not mentioned earlier, states "Impacts to the floodplains resulting from the South Substation expansion would be unavoidable, however, **because the South Substation was originally constructed in the 100-year floodplain, and the proposed project is designed to connect to the existing grid at this location." This is the most arrogant, amongst others, lamebrain excise in this document.** Obviously, two wrongs don't make it right. 443 **Questions**. (1) Who is liable for flooding downstream or across the stream when TEP builds up a berm to protect the expanded South Substation? (2) Will TEP post a $1 billion dollar bond to cover property and human life losses to the next-door industry, to the Tohono O'odham Nation, to the

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Comment No. 466-467 *(441-442 in document)*

Regarding impacts to the local Molybdenum Processing Plant from potential South Substation flooding, refer to Green Valley Public Comment (September 25, 2003, 3-5 p.m.) Comment 64.

Comment No. 468-469 *(442 [second]-444 in document)*

Regarding liability from flooding at the South Substation, refer to Green Valley Public Comment (September 25, 2003, 3-5 p.m.) Comment 60.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
			City of Tucson, Tucson's aquifer, and to the Town of Sahuarita prior to construction? 444 **Recommendations**. (1) **That NO expansion of the South Station be authorized or permitted.** (2) **That TEP find another northern terminal, outside the 500-year floodplain, if it wants to have a transmission line with Mexico.**
C.3	C-11	1/7 to 10	445 **Comments**. The "if necessary" implies that TEP does not understand if this project is required for Section 401 and 404 permit. 446 **Question**. Why "if necessary" at this stage of the project.? 447 **Recommendation**. Do what it takes to understand and become knowledgeable about this issue and it's permit requirements for this project. Thus, delete "if necessary" and find out before resubmitted another draft version of the EIS.
Appendix D Appendix E Appendix F	D.0 E.0 F.0	Lower left Lower left Lower left	448 **Comment**. Each of these three Appendices is a Biological Assessment for different Corridors. All were "Prepared for Tucson Electric Power" by "Harris Environmental Group." There are no indications that DOE required these three Appendices, established oversight or even participated in development of the Biological Assessments. The ACC Decision No. 64356, Condition 5, required that such studies be completed. The "independent" third-party relationship appears not to have been present in these reports. As direct payment by TEP for such reports would conflict the DOE requirements for independence in important areas, such as would be included in a Biological Assessment. Appendix G provides NEPA Disclosure Statements.
Appendix G	G-1 to G-3	form	449 **Questions**. (1) Has the Harris Environmental Group been determined by the DOE to be a **qualified organization** to perform independent analyses, such as these reports? (2) Has the DOE used Harris Environmental Group for any prior NEPA studies? (3) Was this determination made prior to TEP's application for a Presidential Permit? (4) Were these three Appendices awarded based on a competitive solicitation? (5) When was the Harris Environmental Group placed under contract to accomplish these studies? **(6) Did DOE have any involvement in the requirements for this Biological Assessment; include level of detail, quality reviews, and/or direct participation between DOE and Harris Group?** 450 **Recommendations**. (1) Change "Prepared for Tucson Electric Power" to read "Prepared for Department of Energy." (2) Depending on the answers to the above questions, either provide an Appendix G Disclosure Statement for the Harris Environmental Group, Option (a) or indicate what additional TEP contracts that the Harris Group has that "conflict" with the draft EIS, Option (b). Please indicate all such contracts within the past five years, start and completion dates, value, and key TEP oversight technical manager.
Appendix D Appendix E Appendix F Executive Summary	D-4 E-3 F-4	4/7 4/7 4/7	451 **Comment**. This line indicates that the FWS will issue a Biological Opinion (BO) based in the Biological Assessment (BA) contained in these Appendices. 452 **Question**. (1) When is it expected that a BO will be issued? (2) Who will receive this BO? TetraTech, DOE, TEP, Harris Group (3) What is the role of the DOE in Section 7 consultations? (4) What is the role of TEP in Section 7 consultations?
	D-5 E-4	1/2 and 10 1/2 and 10	(5) Do the Arizona State Land Department (ASLD) and Arizona Game and Fish Department receive a copy of the BO?

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Comment No. 470-472 *(445-447 in document)*

Regarding permits or review requirements under Sections 401 and 404 of the *Clean Water Act*, refer to Green Valley Public Comment (September 25, 2003, 3-5 p.m.) Comment 59.

Comment No. 473-475 *(448-450 in document)*

The BAs were prepared by a professional biologist, under contract with TEP, and the Federal agencies always review and evaluate the merits of the information before relying upon it in an environmental analysis.

Comment No. 476-478 *(451-453 in document)*

Refer to Section 4.3 regarding consultation with USFWS and preparation of the BO.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
	F-5	1/2 and 10	453 **Recommendation** (1) Include the results of the BO in the Appendices before the Final EIS.
Appendix D 1.2 1.4	D-11 D-15	1/5 6. Road ../1	454 **Comment**. The term "obliterated" is not appropriated. 455 **Recommendation** Change "obliterated" to "returned to natural vegetation, including planting, watering, and native plants from that area"
Appendix B 1.4	D-15	1. Environmental Training.	456 **Comment**. This implies that "all construction supervisors" will receive this training. During the ACC Line Siting Hearings, TEP testified that ALL construction workers would receive such training. Further, TEP indicated that all workers would be trained prior to working on-site. 457 **Recommendations**. (1) Change "supervisors" to "workers" in line 1 (2) After "training," add "before performing any on-site work."
Appendix B 1.4	D-15	2. Erosion Control Measures	458 **Comment**. The second sentence discussed "Best Management Practices" but indicates that "Specific BMPs will be identified after coordination with Arizona Department of Environmental Quality (ADEQ) and before implementation of the project, for the entire length of the selected corridor." 459 **Question**. (1) Why haven't these BMPs been determined for each Corridor? (2) When will DOE review and approve the "specific" BMPs (as written, this option may not exist)? 460 **Recommendation**. Include the Western Corridor Best Management Practices in the EIS, so that decision makers can consider these when determining the Mitigation measures in various Records of Decisions (RODs).
Appendix D 1.4	D-15	3. Fire Prevention Plan	461 **Comment** This plan needs to be reviewed by decision makers prior to issuing a ROD. 462 **Question**: (1) Who will approve this Fire Prevention Plan? (2) Will the USFS and BLM have approval authority? (3) Which local fire districts have been included in coordination necessary for the development of this Fire Prevention Plan? 463 **Recommendations**. Change "under development" to read "is found in Appendix X"
Appendix D 1.4	D-15	4. Hazardous Material Spill Response Plan	464 **Comment** This plan needs to be reviewed by decision makers prior to issuing a ROD. 465 **Question**: (1) Who will approve this Plan? (2) Will the USFS and BLM have approval authority? (3) Which local fire districts and county emergency response centers have been included in coordination necessary for the development of this Plan? 466 **Recommendations**. Change "under development" to read "is found in Appendix Y"
Appendix D 1.4	D-15	5. Invasive Species Control	467 **Comment** This plan needs to be reviewed by decision makers prior to issuing a ROD. 468 **Question**: (1) Who will approve this Invasive Species Management Plan? (2) Will the USFS, ASLD, and BLM have approval authority? (3) Will the on-site "staff biologist" be involved in the development, implementation or management of measures to control invasive species? (4) Where are the roles and responsibilities of the Staff Biologist described in this EIS? 469 **Recommendations**. Change "under development" to read "is found in Appendix X"
Appendix D 1.4	D-15	6. Road Closure/ Obliteration	470 **Comment**. The Road Analysis (RA) discussed in the second paragraph appears to contain valuable information necessary for decision makers to understand the EIS. 471 **Question**:

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Comment No. 479-494 *(454-469 in document)*

The text and level of detail provided is appropriate as written.

Comment No. 495-497 *(470-472 in document)*

The Roads Analysis is available as a reference as part of the administrative record.

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Paragraph	Page	Para/ Line Nos.	Comments, Questions (if necessary), and Recommendation
		2/3	(1) Should the RA be included as an Appendix? 472 **Recommendations**. Include the RA as an Appendix (only on CD-ROM versions).
Appendix D 1.4 1.4 1,4 1.4 1.4	 D-16 D-16 D-17 D-16 D-17	 7. Additional Mitigation 2. MSO 1. CFPO 2. MSO 1. CFPO	473 **Comment**. The second mitigation measure for the Mexican Spotted Owl required that "protocol surveys will be conducted in the year immediately before construction." The CFPO requires the survey two years before construction. The construction project is expected to be between 12 and 18 months. 474 **Recommendation**. (1) Recommend commencing this protocol for MSO as soon as the Final EIS is issued. (2) Recommend conduct the CFPO survey ASAP.

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Comment No. 498-499 *(473-474 in document)*

Protocol surveys would be conducted as appropriate following the Record of Decision.

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Part II – Compliance with
***Federal Register* "Notice of Intent to prepare an EIS"**

The Table below provides a comparison of verbatim requirements in the DOE-issued "Notice of Intent" to the response in the draft EIS in the third column. An "assessment" of recommended actions that could resolve open or incomplete issues in the present version of the draft EIS are included in the fourth column.

	Location in NOI	Requirement	Draft EIS Response	Assessment
500	**Action**	Notice of intent to prepare an environmental impact statement (EIS).	This Notice started this process, which is ongoing	The process is in the draft EIS phase.
501	**Summary**	Tucson Electric Power Company (TEP) has applied to DOE for a Presidential permit to construct a double-circuit 345,000-volt (345-kV) transmission line originating at TEP's South Substation in Sahuarita, Arizona, and extending approximately 60 miles alternative routes, where it would cross the United States border with Mexico in the vicinity of Nogales, Arizona.	The requirements for a "double-circuit" is not proven or even discussed in the draft EIS. The operational capability for this eystem is 1,000 MW per circuit or a total of 2,000 MW with only 500 MW initially being planned for implementation due to lack of additional power at TEP's South Station. This capability is almost equal to the maximum peak demand for Tucson on August 12, 2003. At the ACC Transmission Line Siting Hearings, TEP testified the capabilities for the system was only 500 MW as indicated in TEP's ACC CEC Application.	The operational capability of two 1,000 MW circuits is enough for the entire city of Tucson. This is four times the power requirement the applicants requested at the ACC Line Siting Hearings. The ACC needs to review this change, which is not reflected in TEP's Ten Year Transmission Plan or other documents until the draft EIS was released.
502	Summary	South of the border, the line would extend approximately 60 miles into Mexico and terminate at an existing substation located in the City of Santa Ana, in the Mexican State of Sonora. DOE has determined that the issuance of the Presidential permit would constitute a major Federal action that may have a significant impact upon the environment within the meaning of the National Environmental Policy Act of 1969 (NEPA).	No data are provided in the draft EIS concerning the other half of this system, the 60 miles into Mexico. This system will have significant impacts on both sides of the border, and without a total system view, environmental impacts and effects cannot be understood, so decision makers can make sound decisions.	**Without any environmental or technical information, Alternatives, or constraints from the southern half of this system, at this point, the only logical DOE action would be either to recommend NO ACTION or require the draft EIS to be resubmitted.**
503	Summary	For this reason, DOE intends to prepare an EIS to address reasonably foreseeable impacts from the proposed action and alternatives.	Draft EIS failed to consider reasonably foreseeable impacts, including local power generation, distributed generation, Mexican recession impacts in Sonora and Santa Cruz County, electricity supply and demand forecasts	**Failed to use good analysis practices.**
504	Summary	The purpose of this Notice of Intent is to inform the public about the proposed	Public participation was accomplished; however, use of	Complied with public participation;

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Comment No.500

The Federal agencies note the commentor's statement that the EIS process was initiated by the Notice of Intent to Prepare an Environmental Impact Statement.

Comment No. 501

While each circuit is thermally capable of transmitting 1,000 MW, the double circuit system has been designed and would be operated to transmit 500 MW total, for operational and reliability considerations. It is not anticipated that the double circuit system would be operated above 500 MW and the environmental impacts of operating at 500 MW is analyzed.

Comment No. 502
The impact from the Mexican portion of the proposed transmission line is analyzed to the extent that it is reasonably foreseeable. Air resources have far-reaching effect and impact to United States from emissions that could be generated in Mexico from the construction of Mexico's connection portion of the transmission line is analyzed in Section 4.8.3 of the Final EIS. The potential impact from the proposed project in Mexico is not analyzed in the EIS.

Comment No. 503

A new power plant or local (distributed) generation in Nogales is not a viable alternative to a new, second transmission line (part of TEP's proposal). Therefore, the alternative of a new power plant is not evaluated in detail in this EIS (refer also to Section 2.1.5, Alternatives Considered But Eliminated From Further Analysis).

Mexican recession impacts on Sonora and Santa Cruz County are outside the scope of this EIS. The ACC is vested with the state's authority to decide how it believes energy should be furnished within Arizona's borders.

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	Location in NOI	Requirement	Draft EIS Response	Assessment
504 cont.		action, announce plans for three public scoping meetings in the vicinity of the proposed transmission lines, invite public participation in the scoping process, and solicit public comments for consideration in establishing the scope and content of the EIS.	material from scoping was less than complete	however, less than complete use made of Scoping Comments by DOE.
505	Summary	Because the proposed project may involve an action in a floodplain or wetland, the EIS will include a floodplain and wetlands assessment and floodplain statement of findings in accordance with DOE regulations for compliance with floodplain and wetlands environmental review requirements (10 CFR part 1022).	Floodplain compliance was faulty as this South Substation meets "critical facility" requirements and thus needs to consider 500-year floodplain. Wetland analysis in draft EIS failed to include one proposed Wild and Scenic River.	**Failed to comply, wrong floodplain used** (100-yr versus 500-yr), analysis incomplete, public hearing have not been held to date.
506	**Dates**	DOE invites interested agencies, organizations, and members of the public to submit comments or suggestions to assist in identifying significant environmental issues and in determining the appropriate scope of the EIS.	Public comments were submitted, other non-federal agency participation appears to have been very limited (responses in Appendix A), very little follow up DOE to obtain other agency inputs, such as Border Patrol, USAF, FAA, US Fish and Wildlife Services.	**Partial compliance**, with reasonable public response, low response by other federal, state, county, city, towns and tribes.
507	**Background and Need for Agency Action**	Executive Order 10485, as amended by Executive Order 12038, requires that a Presidential permit be issued by DOE before electric transmission facilities may be constructed, maintained, operated, or connected at the U.S. international border.	Actions are not completed including the DOE "reliability" analysis, which appears to be a significant fault in the proposed project.	**Many actions are still required** to comply with Presidential permit requirements.
508	Background and Need for Agency Action	The Executive Order provides that a Presidential permit may be issued after a finding that the proposed project is consistent with the **public interest.**	There is no justification provided by DOE as to the "public interest" in this project, other than TEP's business plan.	**Failed** to comply to requires that NO ACTION by DOE be the only acceptable Alternative
509	Background and Need for Agency Action	In determining consistency with the **public interest**, DOE considers the impacts of the project on the reliability of the U.S. electric power system and on the environment.	There is **no proof that this system improves the "U.S. electric power system" as contrary information states the U.S. Western Grid's reliability would be significantly reduced by the inclusion of all of the Mexican generation and transmission equipment into the US grid, as proposed by TEP as its interconnect methodology.** The "**Nogales" reliability situation has improved significantly** since the ACC 1999 order, with distribution outages the cause of over 99.9% of customer outages, and the upgrading to 100 MW to meet the supply requirements in Santa Cruz County, estimated until 2030 or later. *Black's Law Dictionary* defines "public interest" as "1. The	**Failure to improve**, actually to **lower, the reliability of the US Western Grid requires that NO ACTION by DOE be the only acceptable Alternative.** Such a negative technical solution fails to meet the definition of "public interest."

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Comment No. 504

The public comments from scoping meetings are categorized either as issues within the scope of the EIS or issues out of the scope of the EIS (see Section 1.6.2 of the Final EIS) and the scoping meeting issues are also addressed in the EIS.

Comment No. 505

Sections 3.7, 4.7, and Appendix C of the Final EIS has been modified to include analysis of the 500-year floodplain for the South Substation.

Comment No. 506

As discussed in Chapters 9 and 10 of the Final EIS, consultation with those Federal and state agencies that TEP would need to act in issuing permits or approvals for the proposed project have been initiated.

Comment No. 507

As part of DOE's decisionmaking process on whether to grant a Presidential Permit for the proposed project, DOE will determine whether the proposed project will adversely impact the reliability of the U.S. electric system. Also, before authorizing exports to Mexico over the proposed 345-kV facilities, DOE must ensure that the export will not impair sufficiency of supply within the United States and will not impede, or tend to impede, the coordinated use of the regional transmission system.

Comment No. 508

Section 1.2.2, DOE Purpose and Need, of the Final EIS discusses the purpose and need for DOE action. In determining whether a proposed action is in the public interest, DOE considers the impact of the proposed project on the environment and on the reliability of the U.S. electric power supply system.

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	Location in NOI	Requirement	Draft EIS Response	Assessment
509 cont.			general welfare of the public that warrants recognition and protection. 2. Something in which the public as a whole has a stake; esp., an interest that justifies government regulation."	
510	Background and Need for Agency Action	The regulations implementing the Executive Order have been codified at 10 CFR 205.320– 205.329.	Complied	Complied.
511	Background and Need for Agency Action	Issuance of the permit indicates that there is no Federal objection to the project, but does not mandate that the project be completed.	In addition to the Coordinating Agencies with this draft EIS, the Department of Defense (US Air Force Airspace Management, US Army Corps of Engineers), Environmental Protection Agency, Department of Transportation (Federal Aviation Administration), Department of Homeland Security (Border Patrol), Department of Interior (US Fish and Wildlife Service, Bureau of Land Management), Department of Agriculture (US Forest Service), Arizona Game and Fish Department, Arizona Department of Environmental Quality, Arizona Department of Water Resources, Arizona State Historic Preservation Office, Pima County, Santa Cruz County, City of Nogales, Town of Sahuarita, all have additional permitting actions that could impact this system. All of these need to coordinate their actions with this system along with a long list of Mexican counterparts.	**Low compliance**, since required siting information has not been provided by the Applicant. Some major federal agencies impacted by this proposal have not been given enough information to understand this project and thus, cannot provide adequate inputs to the current process. Until those listed have agreed at the pre-draft EIS level, this process should not move foreword.
512	Background and Need for Agency Action	On August 17, 2000, TEP, a regulated public utility, filed an application for a Presidential permit with the Office of Fossil Energy of DOE, and on May 18, 2001, supplemented its application with its March 1, 2001, application to the Arizona Corporation Commission for a Certificate of Environmental Compatibility.	The original Presidential permit application was very shallow in its content, never changed or updated, but supplemented by an Application to the ACC for a CEC. The environmental information in the ACC CEC application was very weak with at least 15 additional studies and analysis required by the ACC prior to permitting construction.	**Failed** to include all the required information in both the Original Application and the ACC Application, corrections never issued.
513	Background and Need for Agency Action	TEP proposes to construct two 345-kV transmission circuits on a single set of support structures. Both circuits would originate at TEP's existing South Substation located approximately 15 miles south of Tucson in the vicinity of Sahuarita, Arizona, and 1.4 miles east of Interstate Highway 19 (I–19), south of Pima Mine Road, in Pima County, Arizona. South of the border, TEP would	The draft EIS only covers the northern half of this system, thus there is no information presented about environmental issues impacting Mexico and Mexican subsystem impacts on Arizona. The South Substation is located on the Santa Cruz River, well inside the 100-year floodplain.	**Low to partial compliance**, as this is a Project Description. However, half is missing, as there is **no description of the Mexican half of this system**.

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Comment No. 509

As part of DOE's decisionmaking process on whether to grant a Presidential Permit for the proposed project, DOE will determine whether the proposed project will adversely impact the reliability of the U.S. electric system. Also, before authorizing exports to Mexico over the proposed 345-kV facilities, DOE must ensure that the export will not impair sufficiency of supply within the United States and will not impede, or tend to impede, the coordinated use of the regional transmission system.

Comment No. 510

The Federal agencies note the commentor's statement that the Draft EIS complied with the 10 CFR 205.320-205.329.

Comment No. 511

Regarding permitting requirements from Federal and state agencies, refer to response to Comment 481 above.

Comment No. 512

The contents of the TEP's Presidential Permit application are not being evaluated in this EIS.

Comment No. 513

Regarding potential impacts to Mexico from the proposed project, refer to the response to Comment 502 above. For discussion on locating South Substation in a 100-year floodplain, refer to response to Magruder, Comment 508 above.

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	Location in NOI	Requirement	Draft EIS Response	Assessment
513 cont.		extend the line approximately 60 miles to the Santa Ana Substation, located in the City of Santa Ana, Sonora, Mexico, and owned by the Comision Federal de Electricidad (CFE), the national electric utility of Mexico.		
514	Background and Need for Agency Action	The TEP application, including associated maps and drawings, can be downloaded in its entirety from the Fossil Energy web site (www.FE.DOE.GOV; choose "Electricity Regulation," then Pending Procedures).	The Applicant has been never defined in the details necessary to understand where facilities are to be located. The maps in the draft EIS are not topographic maps. There are no professional drawings or details signed by a registered Professional Engineer (PE) as being technically correct, Website has never included the ACC CEC application.	Failed to comply, since an adequate project definition, including **locations** of appropriate facilities has never been provided by TEP. **Until received by DOE, then the only acceptable solution is NO ACTION by DOE.**
515	Background and Need for Agency Action	TEP states that there are no firm contracts in place for the sale of power to Mexico using the proposed transmission lines.	This is a "business deal" with only one company. Failure to have a customer should prevent approval.	**Construction of this system should not begin until a long-term contract has been agreed with C.F.E.**
516	Background and Need for Agency Action	Prior to commencing electricity exports to Mexico using the proposed lines, TEP, or any other electricity exporter, must obtain an electricity export authorization from DOE pursuant to section 202(e) of the Federal Power Act.	A future requirement that TEP must comply.	Compliance **not necessary now,** but will be required at a later date.
517	Background and Need for Agency Action	TEP proposes three alternative corridors, each beginning at its South Substation. About one-half of each alternative corridor would be on privately-owned land, with the other half on Federally-owned land. The study corridors are about two miles wide, but, when constructed, the transmission line would actually use a right-of-way about 125 to 250 feet wide.	TEP still has not located sites, and even the width of the transmission line right-of-way was unknown. Additional natural gas "minimum safe distance" requirements will increase the ROW width, but is still to be determined. A Memorandum of Understanding Liability Responsibilities between the gasline company and TEP needs to be accepted by both companies and regulatory agencies before ROWs can be finalized.	**Low compliance** since ROW width has not been determined, **especially with respect to avoidance of safety incidents with the natural gasline. No liability agreements are in the draft EIS.**
518	Background and Need for Agency Action	One alternative corridor, the "Westerly Route" identified by TEP as its preferred route, would extend about 62 miles within the U.S. to the U.S.-Mexico border, primarily on the west side of I– 19. The proposed route would exit the South Substation to the west, intersect the existing natural gas pipeline corridor owned by El Paso Natural Gas Company and located approximately six miles west of I–19, turn south, and parallel the natural gas pipeline for about seven miles. Southwest of Green Valley, the Westerly Route would turn southwest for	This route, where it is in common with the Central route, goes through an industrial area that has not agreed to yielding to TEP. Compliance with the ACC's routes is mandatory; however, this route may not comply. TEP did not have to propose to enter the National Forest on non-utility corridor. This was TEP's decision, not DOE's. In addition, even the current Forest Service designated utility corridor will require special processing by the USFS.	**TEP failed to comply and use the USFS designated utility corridor.**

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Comment No. 514

The exact locations of the facilities associated with the proposed transmission line would depend on the final precise siting of the ROW and support structures, which would occur after each agency has issued a ROD. This would allow for mitigation of potential environmental impacts by resource specialists.

Comment No. 515-516

If TEP's proposed project is approved by each of the Federal agencies, then there would still be a variety of events that could preclude TEP from implementing this project, such as the possibility of failure by TEP to secure a power sales contract with CFE. Issuance of a Presidential Permit by DOE would only indicate that DOE has no objection to the project, but would not mandate that the project be built. If TEP's proposed project is approved by each of the Federal agencies, then there would still be a variety of events that could preclude TEP from implementing this project, such as the possibility of failure by TEP to secure a power sales contract with CFE. Issuance of a Presidential Permit by DOE would only indicate that DOE has no objection to the project, but would not mandate that the project be built (refer also to the response the Center for Biological Diversity, Comment 2).

Comment No. 517

As discussed in Section 2.1 of the Final EIS, TEP defined a 0.25-mi (0.4-km) wide study corridor for each alternative, within which the 125-ft (38-m) transmission line ROW would be sited. The precise siting of the transmission line ROW within the selected corridor would be based on further engineering evaluation and mitigation of potential impacts, following the issuance of ROD by the lead and cooperating agencies.

A minimum distance of 100 ft (30 m) would be maintained between any of the proposed transmission line structures and the edge of the existing EPNG pipeline ROW, in compliance with the Amended Certificate of Environmental Compatibility issued to TEP on October 29, 2001, ACC (see Section 4.10 of the Final EIS). As shown in Table 10-2 of the Final EIS, the Federal agencies consulted with EPNG regarding safety requirements, and EPNG concurred that the ACC's requirement is adequate.

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	Location in NOI	Requirement	Draft EIS Response	Assessment
518 cont.		three miles, and then continue south across private lands before crossing the Coronado National Forest on land not currently a Forest Service-designated utility corridor.		
519	Background and Need for Agency Action	The second alternative corridor, the "Central Route" (identified by TEP as its preferred route if the Westerly Route could not be constructed), would extend about 56 miles within the U.S. to the U.S.-Mexico border. The Central Route would also be located primarily on the west side of I–19. The proposed Central Route would begin in the same way as the Westerly Route, but southwest of Green Valley it would continue parallel to the existing natural gas pipeline to a point in the vicinity of Tubac, where it would make a slight southwest turn. Then, for about three miles, this proposed route would be one mile west of the natural gas pipeline. The route then would turn southeast, rejoin the natural gas pipeline corridor and parallel it through the Coronado National Forest in a Forest Service designated utility corridor that currently contains only the natural gas pipeline.	The draft EIS has a Central route that fails to include the "to a point in the vicinity of Tubac, where it would make a slight southwest turn ... rejoin the natural gasline corridor. The draft EIS uses leg 10 (of the Eastern route) instead of leg 9 (Central route). This would avoid going through a housing area, with multi-million dollar houses requiring condemnation. The ACC specifically rejected the Central route.	**TEP failed to comply** and use the correct Central Route in the draft EIS.
520	Background and Need for Agency Action	The third alternative corridor, identified by TEP as the "Easterly Route," would extend about 60 miles within the U.S. to the U.S.-Mexico border, and for about half this distance would run parallel to the existing 115- kV transmission line owned by Citizens Communications Company, located east of I–19. In the vicinity of Amado, the Easterly Route would cross to the west side of I–19, intersect the existing natural gas pipeline corridor south of Amado on private land, turn south paralleling the natural gas pipeline, and continue, paralleling the natural gas pipeline through the Coronado National Forest in the Forest Service-designated utility corridor.	TEP deleted this route before the May 2001 ACC Line Siting Committee hearings as not viable. TEP did not delete this route from consideration before DOE for over a year afterwards. The ACC rejected this route in January 2002. TEP's rationale for rejection of the Eastern route could also be used to reject the Central and Western Routes.	**Failed to include this route.**
521	Background and Need for Agency Action	Each of the three proposed alternative study corridors would cross 100-year floodplains and may cross wetlands.	None of the routes are outside the 100-year flood plain, and the Northern terminal is required to comply with a 500-year floodplain. The DEIS failed to indicate wetlands were along any route.	**Failed to comply with 500-year floodplain for a critical facility (south substation)**
522	Background and Need for Agency Action	The Westerly Route would cross approximately 1,500 feet of 100-year floodplain; the Central Route, 2,100 feet; the Easterly Route, 6,600 feet.	None of the routes are outside the 100-year flood plain, and the Northern terminal is required to comply with a 500-year floodplain.	All routes are inside 100-year floodplain.
523	Background and Need for Agency Action	Project activities would include clearing rights-of- way and access roads, digging tower footings, setting transmission	Compliance with these actions is why the EIS is required. The inaccurate, incomplete, and in	Understanding the impacts of these actions is why the

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Comment No. 518

Section 1.2 explains the roles of the Federal agencies in developing alternatives for the proposed project. Where an applicant seeks a permit for a particular business project, such as the case with TEP's proposed project, the Federal agencies generally limit their review of alternatives to those that would satisfy the applicant's proposal and decide whether that proposal is or is not worthy of receiving a permit. The Federal agencies do not review alternatives that are not within the scope of the applicant's proposal. Similarly, the agencies do not direct the applicant to alter its proposal; instead, the agencies decide whether a permit is appropriate for the proposal as the applicant envisions it. It is not for the agency to run the applicant's business and to change the applicant's proposal, but only to evaluate the environmental effects of the applicant's business proposal as offered. Accordingly, the EIS evaluates a reasonable range of alternatives, which include the full spectrum of alternatives that would satisfy the applicant's proposal.

Comment No. 519

Refer to Magruder Comments 40-41 above, concerning discussion on Leg 9 of the Central Corridor.

Comment No. 520

On July 3, 2002, TEP wrote a letter to DOE requesting that the Eastern Corridor alternative be removed from further analysis in the EIS for reasons stated in Section 2.1.4 of the Final EIS. TEP's decision not to pursue the Eastern Corridor renders it infeasible, and DOE, in consultation with the cooperating agencies, has removed this alternative from further consideration in the EIS. Where a proposed project is advanced by a non-Federal applicant, such as TEP, seeking a permit for a project, an agency ordinarily need not redefine the applicant's proposal or select alternatives that change the applicant's goals. Because TEP has asserted that it does not want to pursue a given alterative route, the Federal agencies will not decide

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	Location in NOI	Requirement	Draft EIS Response	Assessment
523 cont.		towers, hanging transmission wires, constructing a new substation on the west side of Nogales, Arizona, near Mariposa Road, and modifying TEP's existing South Substation.	error information in the DEIS will not provide correct decision making information.	EIS is required; however, the **DEIS will not provide decision makers with acceptable information.**
524	Background and Need for Agency Action	In a separate but related proceeding, Public Service Company of New Mexico (PNM) has also applied for a Presidential permit to construct an electric transmission line across the U.S. border in the vicinity of Nogales, Arizona. A separate EIS is being prepared in that proceeding. The study corridor identified by TEP as the Central Route is very similar to the study corridor identified by PNM as its "Pipeline Corridor." TEP's Easterly Route and PNM's "East Valley Corridor" study corridors are similar in that a segment of each parallels the Citizens Communications Company's existing 115-kV transmission line.	The **cumulative effects analysis (CEA) needs to consider this Alternative. The Draft EIS failed to accomplish the minimal requirements for a CEA and failed to assess and evaluate the PNM Alternative.**	**Failed to comply**
525	Background and Need for Agency Action	To assist the reader, maps available from the DOE web site (referenced above) reflect the applicants proposal and also the proposed corridors of the other applicant.	The cumulative effects analysis (CEA) **must consider this Alternative**. The Draft EIS failed to assess and evaluate the PNM Alternative.	**Failed to comply.**
526	Background and Need for Agency Action	Each of the EISs being prepared will **consider the potential impacts** of the other company's proposed transmission line as part of its cumulative impacts analysis.	The cumulative effects analysis (CEA) **must consider this Alternative**. The Draft EIS **failed** to accomplish the minimal requirements for a CEA and failed to assess and evaluate the PNM Alternative.	**Failed to comply as PNM's potential impacts were ignored.**
527	**Identification of Environmental Issues**	A purpose of this notice is to solicit comments and suggestions for consideration in the preparation of the EIS.	Not all comments and suggestions from the Scoping process appear to have been considered.	**Limited compliance**, mostly superficial.
528	Identification of Environmental Issues	As background for public comment, this notice contains a list of potential environmental issues that DOE has tentatively identified for analysis. This list is not intended to be all-inclusive or to imply any predetermination of impacts.	Very limited compliance, with **no emphasis on Mexican issues, valid Alternatives, or cumulative impacts, most details necessary** for compliance are missing.	**Limited compliance** in a few areas
529	Identification of Environmental Issues	Following is a preliminary list of issues that may be analyzed in the EIS:	Very **limited compliance**, with no emphasis on Mexican issues, valid Alternatives, or cumulative impacts	**Limited compliance in a few areas**
530	Identification of Environmental Issues	(1) Socioeconomic impacts of development of the land tracts and their subsequent uses;	**Not followed**, see page 2-26 and 2-27	**Failed to comply**
531	Identification of Environmental Issues	(2) Impacts on protected, threatened, endangered, or sensitive species of animals or plants, or their critical habitats;	**Not followed**, see page 2-25, which indicates that Sec. 7 ESA consultations have not yet started	**Failed to comply**
532	Identification of Environmental Issues	(3) Impacts on floodplains and wetlands;	**Not followed**, wrong floodplain assessed, omitted the designation of Sycamore Creek into the Wild	**Failed to comply**

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Comment No. 520 *(continued)*

otherwise, and it would be a waste of time and resources to evaluate an alternative that the applicant reject.

Comment No. 521-522

Sections 3.7, 4.7, and Appendix C of the Final EIS has been modified to include a 500-year floodplain analysis of the South Substation.

Comment No. 523

The Federal agencies note the commentor's concern about inaccuracies, incompleteness and errors in the Draft EIS.

Comment No. 524-526

The proposed PNM transmission line project is no longer reasonably foreseeable, as explained in Chapter 5 of the Final EIS.

Comment No. 527

For discussion on issues raised during the public scoping meeting, refer to the response to Comment 479.

Comment No. 528

See Section 1.1.1, The Proposed Action, on a connecting transmission line in Mexico.

Section 1.2 explains the roles of the Federal agencies in developing alternatives for the proposed project. Where an applicant seeks a permit for a particular business project, such as the case with TEP's proposed project, the Federal agencies generally limit their review of alternatives to those that would satisfy the applicant's proposal and decide whether that proposal is or is not worthy of receiving a permit. The Federal agencies do not review alternatives that are not within the scope of the applicant's proposal. Similarly, the agencies do not direct the

Comment No. 528 *(continued)*

applicant to alter its proposal; instead, the agencies decide whether a permit is appropriate for the proposal as the applicant envisions it. It is not for the agency to run the applicant's business and to change the applicant's proposal, but only to evaluate the environmental effects of the applicant's business proposal as offered. Accordingly, the EIS evaluates a reasonable range of alternatives, which include the full spectrum of alternatives that would satisfy the applicant's proposal.

Chapter 5 of the EIS presents an analysis of cumulative impacts, as required under NEPA, that could occur as a result of the potential impacts of TEP's proposed project when added to impacts from other past, present, and reasonably foreseeable future actions. Where specific information was available on past, present, and reasonably foreseeable future actions, it was included in the EIS; relevant information received from the public during the Draft EIS public comment period was also added to the Final EIS (e.g., information on planned residential developments was added to Section 5.2.4). Section 5.3, Cumulative Impact Analysis, has been revised in the Final EIS to more completely assess cumulative impacts. Also, Table 5.4-1 has been added to the Final EIS to provide a summary comparison of the cumulative impacts by resource area and identify any differences in cumulative impacts for the Western, Central, and Crossover Corridors.

Comment No. 529-530

Socioeconomic impacts from the constructing the proposed project are analyzed in Section 4.5.1 of the EIS, including discussions on landowners affected by TEP acquiring easements for the transmission line ROW and access roads; negative visual impacts on private property; compensation to landowners for acquiring easement on existing access road. The ROW easement developed with proposed project would have limited land use.

Comment No. 531

The Federal agencies have initiated formal consultation under Section 7 (a)(2) of the ESA with the USFWS (see Section 4.3).

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	Location in NOI	Requirement	Draft EIS Response	Assessment
			and Scenic River category, p. 2-27	
533	Identification of Environmental Issues	(4) Impacts on cultural or historic resources;	**Partially followed**, **failed** to meet ACC requirements to consult with local historical societies, some with extensive, unique information.	**Failed to comply**
534	Identification of Environmental Issues	(5) Impacts on human health and safety;	**Failed to determine the "minimum safe distance"** between the natural gasline and electric conductors.	**Failed to comply**
535	Identification of Environmental Issues	(6) Impacts on air, soil, and water;	**Very limited compliance**, with no emphasis on Mexican issues, valid Alternatives, or cumulative impacts	**Limited compliance** in very few areas
536	Identification of Environmental Issues	(7)Visual impacts; and	Very limited compliance, with **errors in some analyses** and emphasis in wrong factors	**Limited compliance** in very few areas
537	Identification of Environmental Issues	(8) Disproportionately high and adverse impacts on minority and low income populations.	**Failed to understand** that 70% of census areas are environmental justice area with occupational and children health issues, especially, when including Mexico and Nogales.	**Failed to comply**
538	Identification of Environmental Issues	The EIS will also consider alternatives to the proposed transmission lines, including, to the extent practicable:	**Very limited analysis of alternatives with inadequate rational for rejection of many options.**	**Failed to comply**
539	Identification of Environmental Issues	(1) No Action Alternative: The EIS will analyze the impacts associated with "no action." Since the proposed action is the issuance of a Presidential permit for the construction of the proposed transmission lines, "no action" means that the permit would not be issued. However, not issuing the permit would not necessarily imply maintenance of the status quo. It is possible that the applicant and/or the Mexican government may take other actions if the proposed transmission lines are not built. The No Action Alternative will address the environmental impacts that are reasonably foreseeable to occur if the Presidential permit is not issued.	**Mexican government actions not assessed or discussed if the line is not build. In addition, all environmental impacts "to" Mexico from the U.S. and those "from" Mexico to the U.S. have not been assessed. The environmental impacts consider the border transparent, Not such treatment was included. There is considerable concern about Mexican power plants causing air pollution in the US, if power is going north on this system.**	**Limited compliance** but failed to include any factors involving Mexico, which is where half of this system will be located.
540	Identification of Environmental Issues	(2) **Construction of a powerplant in the U.S. closer to the U.S.-Mexico border** with a shorter transmission line extending to the border, an alternative concept for supplying electric power to the target region.	**Failed to evaluate and assess this viable alternative.**	**Failed to comply.**
541	**Scoping Process**	Interested parties are invited to participate in the scoping process both to refine the preliminary alternatives and environmental issues to be analyzed in depth, and to eliminate from detailed study those alternatives and environmental issues that are not feasible or pertinent.	Failed to analyze issues into depth, for example, the **minimum safe distance between the natural gasline and the electrical system** which was erroneously calculated by the ACC during the Line Siting Hearings. Most of criteria used to reject some Alternatives would also apply to the three Alternatives	**Failed to follow through in the Draft EIS.** Criteria for Alternative rejection was subjective and not property applied, failed to comply with standard analysis

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Comment No. 532

The "Notice of Intent to Prepare an Environmental Impact Statement (EIS) and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement" for the proposed project was published in the *Federal Register* (66 FR 35950) on July 10, 2001. By including the Floodplain and Wetlands Involvement in this Notice of Intent, and taking public comments on the entire Draft EIS (including the Floodplain/Wetlands Assessment included in Appendix C), DOE fulfilled the requirements of its regulations for "Compliance with Floodplain/Wetlands Environmental Review Requirements" (10 CFR Part 1022).

Sections 3.7, 4.7, and Appendix C of the Final EIS has been modified to include an analysis of the 500-year floodplain for South Substation.

Comment No. 533

This EIS does not assess whether TEP meets the ACC's requirements.

Comment No. 534

A minimum distance of 100 ft (30 m) would be maintained between any of the proposed transmission line structures and the edge of the existing El Paso Natural Gas (EPNG) pipeline ROW, in compliance with the Amended Certificate of Environmental Compatibility issued to TEP on October 29, 2001, by ACC (see Section 4.10). As shown in Table 10-2 of the Final EIS, DOE consulted with EPNG regarding safety requirements, and EPNG concurred that the ACC's requirement is adequate.

Comment No. 535

Chapters 3 and 4 of the EIS analyze the affected environment and potential impacts to air, soil and water resources from the proposed project.

Section 5.2.1, Other Energy and Transmission Line Projects in Southern Arizona, has been revised in the Final EIS to include the available information on a transmission line that would connect to TEP's proposed project at the U.S.-Mexico border. Section 1.1.1, The Proposed Action, of

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	Location in NOI	Requirement	Draft EIS Response	Assessment
			analyzed.	practices.
542	Scoping Process	The scoping process is intended to involve all interested agencies (Federal, state, county, and local), public interest groups, Native American tribes, businesses, and members of the public. Potential Federal cooperating agencies include the U.S. Department of the Interior (including the Bureau of Land Management, Bureau of Indian Affairs, Park Service, and the Fish and Wildlife Service), the U.S. Department of Agriculture's Forest Service, the International Boundary and Water Commission, and the Tohono O'odham Nation.	The State of Arizona, including the ACC, Fish and Game, Air Quality Environment Department (AQED), Arizona Water Resources, etc. did not cooperate with DOE in the NEPA process used to develop this draft EIS. The Arizona **Certificate of Environmental Compliance (CEC) was granted with over 15 environmental studies that had not been started**, as the **ACC felt the federal EIS would identify and remediate environmental issues**.	**Failed to have concurrence between federal and state governments**.
543	**Draft EIS Schedule and Availability**	The Draft EIS is scheduled to be issued in December 2001, at which time its availability will be announced in the **Federal Register** and local media and public comments again will be solicited.	Failed to meet this deadline, as August 22, 2003 is over 20 months late.	**Failed to meet deadline.**
	Draft EIS Schedule and Availability	People who do not wish to submit comments or suggestions at this time but who would like to receive a copy of the Draft EIS for review and comment when it is issued should notify Mrs. Russell at the address above.	Not draft EIS related.	None applicable.
544	Draft EIS Schedule and Availability	The Draft EIS will be made available for public inspection at several public libraries and reading rooms in Arizona.	Complied, however, **only partial documents provided to some libraries.**	**Mostly Complied**
	Draft EIS Schedule and Availability	A notice of these locations will be provided in the **Federal Register** and local media at a later date.	Complied	Complied.

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Comment No. 535 (*continued*)

the Final EIS has been revised to clarify that TEP's proposed project is limited to activities within the United States, and the analysis in this EIS is limited to environmental impacts within the United States.

Impacts to United States from emissions that may be generated in Mexico from the construction of Mexico's connecting portion of the transmission line were analyzed using conservative assumptions due to lack of available information on project design and construction in Mexico.

Comment No. 536

Sections 3.2 and 4.2 of the EIS present analyses of the affected environment and potential impacts to the visual resources from the proposed project.

Comment No. 537

Sections 3.13 and 4.13 of the EIS discuss the affected environment and potential impacts to environmental justice groups. Based on the analyses presented in Section 4.13.1 of the EIS, the Federal agencies conclude that no disproportionately high and adverse impacts would be expected for minority or low-income populations.

Comment No. 538

Section 2.1 Alternatives, explains the roles of TEP and the Federal agencies in developing alternatives for the proposed project. Where an applicant seeks a permit for a particular business project, such as the case with TEP's proposed project, the Federal agencies generally limit their review of alternatives to those that would satisfy the applicant's proposal and decide whether that proposal is or is not worthy of receiving a permit. The Federal agencies do not review alternatives that are not within the scope of the applicant's proposal. Similarly, the agencies do not direct the applicant to alter its proposal; instead, the agencies decide whether a permit is appropriate for the proposal as the applicant envisions it. It is not for the agency to run the applicant's business and to change the applicant's proposal, but only to evaluate the environmental effects of the applicant's business proposal as offered. Accordingly, the EIS evaluates a reasonable

Comment No. 538 *(continued)*

range of alternatives, which include the full spectrum of alternatives that would satisfy the applicant's proposal.

Comment No. 539

As the EIS analyzes potential environmental impacts to United States from the proposed project, potential impacts to Mexico is outside the scope of the EIS. Impact to United States from emissions that could be generated in Mexico is included as appropriate in Section 4.8.3 of the Final EIS.

The Federal agencies are not aware of any specific information available on power plants that may be built in Mexico, and was not provided any such specific information during the Draft EIS public comment period. Chapter 5 presents the most current information available regarding the construction of power plants in the vicinity of Nogales, Mexico.

Comment No. 540

ACC Comment 3 emphasized that a new power plant in Nogales is not a viable alternative to a new, second transmission line (part of TEP's proposal). Therefore, the alternative of a new power plant is not evaluated in detail in this EIS (refer also to Section 2.1.5, Alternatives Considered But Eliminated From Further Analysis).

Comment No. 541

A minimum distance of 100 ft (30 m) would be maintained between any of the proposed transmission line structures and the edge of the existing EPNG pipeline ROW, in compliance with the Amended Certificate of Environmental Compatibility issued to TEP on October 29, 2001, ACC (see Section 4.10 of the Final EIS). As shown in Table 10-2 of the Final EIS, the Federal agencies consulted with EPNG regarding safety requirements, and EPNG concurred that the ACC's requirement is adequate. (Reference to first place the response appears).

Comment No. 542

As part of the NEPA process, the Federal agencies have initiated consultations with those state agencies that would need to act in issuing permits or approvals for the proposed project, including ACC, and ADEQ (see Chapter 9 of the EIS).

Comment No. 543

In order to include all necessary analyses needed for the Draft EIS, the scheduled release date of the Draft EIS stated in the Notice of Intent in the *Federal Register* was not met.

Comment No. 544

Copies of the Draft EIS, the Draft EIS Summary, and the references were placed in the four public libraries and available for public review. The Draft EIS was placed in these public libraries in order to allow the maximum number of people that would be potentially affected by the proposed project along the proposed transmission line corridors.